THE BRICKBUILDER.

VOL. 13 JUNE 1904 No. 6

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FROM WORK OF WALTER ATHERTON AND HERBERT D. HALE, ASSOCIATED, ARNOLD W. BRUNNER, HERBERT D. HALE, MACCLURE & SPAHR, PURDON & LITTLE, SHEPLEY, RUTAN & COOLIDGE, WARD W. WARD, WARREN & WETMORE.

CONTENTS — LETTER PRESS

TOWER OF THE CHURCH OF SAN MIGUEL, SARAGOSSA, SPAIN.

THE BRICKBVILDER

VOL. 13 No. 6 — DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY — JUNE 1904

THE BRICKBUILDER.

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ARCHITECTS' SPECIFICATIONS.

THE first installment of Mr. Wait's paper, which appeared in our last issue, has called forth, as we anticipated, many comments, especially from our New York readers. The legal criticisms which he makes upon architectural practice are in the main admirable and are far more useful than such as are usually receivcd from lawyers. In fact, while we would dislike to offer the writer a *quid pro quo*, we are sure that if there is anything misleading, confusing and generally verbose it is a lawyer's statements of matters architectural or structural. It is only exceptional that the legal fraternity takes as clear and reasonable views of requirements and how to state them as are evinced by Mr. Wait, and he explains this very naturally by his long and varied experience with architects' specifications, an experience which has corrected the diffusion of the average legal mind. There are a few points, however, on which we find some of our correspondents take a distinct issue. The clauses criticising the requirement that drawings shall be returned to the architect seem uncalled for in Mr. Wait's judgment, but when he further states that at least one court has decided that an architect has no property rights in his drawings and can claim no compensation in case a subsequent use thereof in the construction of another building is made by a third person, the reason for requiring the return of the drawings is made very apparent. This might make hardship for the builder in some cases, but the buildings regarding which there are serious disputes are after all in the minority, and generally the settlement of accounts between the builder and the owner through the architect is a perfectly amicable proceeding, and no injustice would be done to either by returning the drawings to the architect.

The criticism which Mr. Wait makes of the reservation by the architect of the right and power to select subcontractors is a perfectly fair one. On the other hand, the architect should distinctly have the right of limiting the selection to properly experienced subcontractors, and this is done in many cases by requiring the contractor to ascertain before committing himself to a subcontractor or a bid as to just what parties will be acceptable to the architect. There is no known legal remedy that will compensate an owner for the results of ignorant or malicious work on the part of a subcontractor. While such acts render the subcontractor possibly amenable to law, certainly New York is almost the last place in the world where an owner could obtain commensurate justice. Nowhere else are the law's delays so outrageous and so hard to prevent, and any compensation which after years of litigation might be awarded an owner for the results of bad workmanship would be vastly incommensurate to the vexation and all the hundred incidental troubles which arise in a large building from bad workmanship. A building is built certainly at least for a lifetime, and if some things are wrong no money payment can make reparation therefor. Consequently, as prevention is far more efficacious than legal cure or remedy, the requirements as to the right of the architect in the selection of subcontractors ought, in equity and fairness, to be made more rigid rather than less, provided, of course, that restrictions are so named in the specification as not to work hardship to the builder.

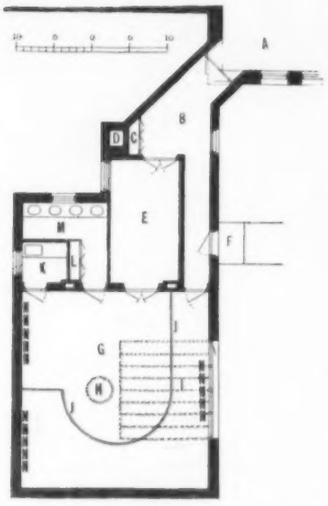
It is noticed that Mr. Wait refers to the architect as the agent for the owner. This is an unfortunate assumption which is only too common in the minds of the legal profession. It is absolutely wrong in fact and in theory. The architect should properly never be considered the agent of the owner. When he becomes such he loses all character as an arbitrator or judge between the parties, and he has no right morally or legally to judge any question in dispute when his decision might be contrary to the wishes or instructions of a dishonest owner, and we all know how frequently the architect must take a position of direct championship for a builder. The architect is first, last and always an adviser, and any one who admits any other position is very likely to come to grief.

Hospital Planning. VI.

BY BERTRAND E. TAYLOR.

THE OPERATING DEPARTMENT.

THERE is no department connected with a hospital that has shown such development as has the operating department during the past twenty-five years. The science of surgery has developed wonderfully and the everyday successes of the humblest practitioners of today in every part of the world were not thought possible by the great specialists of twenty-five years ago.



PLAN OF McLANE OPERATING ROOM, ROOSEVELT HOSPITAL, NEW YORK.

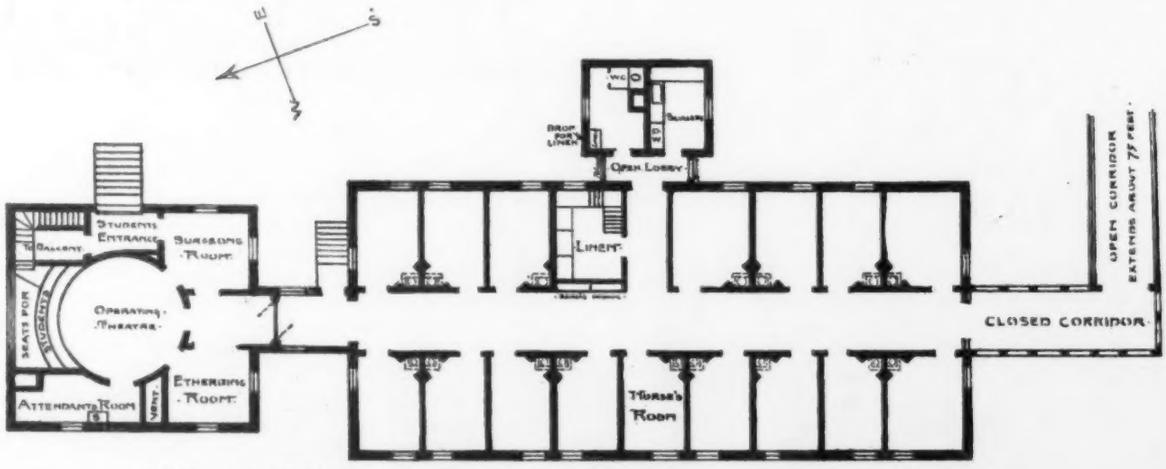
With this wonderful development has come a demand for more perfect and comprehensive arrangements, and a more careful study and classification of every accessory help connected with operations.

Even a small hospital should have a complete operating or surgical department in a separate pavilion, or if this is not possible on account of the expense, in a semi-isolated wing of the administration building. In a hospital large enough to have a special department of male and female surgical wards and private rooms, which is, of course, most desirable, the operating pavilion should be so located as to be especially accessible but well isolated by ventilated corridors. The wall of the building having the large operating room windows should face north, and the ambulance entrance be so located as not to be visible from the patients' rooms.

BRADLEE WARD AND OPERATING THEATER, MASSACHUSETTS GENERAL HOSPITAL, BOSTON.

The central and most interesting feature of this department is the main operating room. This room should be at least fourteen feet by eighteen feet in area and have a coved ceiling fourteen feet to eighteen feet in height. Good work can be done in a smaller room, but when there is an important case, and possibly a renowned specialist from the city performs the operation, the local practitioners desire to be present, and with the nurses and the various accessories needed in the room the above size is none too large.

In addition to the main operating room it is almost absolutely necessary to provide a smaller operating room to be used for septic or unclean cases and for accident cases that would infect the main operating room, which must be kept absoutely aseptic for major operations. Not only must the walls, floors, furniture and every little accessory be absolutely clean and aseptic, but for abdominal surgery even the air itself must not be polluted by the previous presence of the unclean, except when absolutely unavoidable.



FLOOR PLAN, BRADLEE WARD AND OPERATING THEATER, MASSACHUSETTS GENERAL HOSPITAL.

These rooms should each have a large north window continued into a large skylight, double glazed in cold

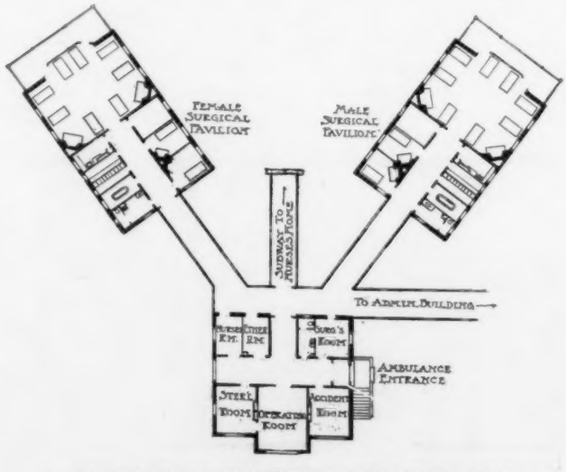
climates with sheets of plate glass, far enough apart to admit of easy cleaning, with portions to open for airing in hot weather, the inner plate to be ground to temper the light and obscure vision where needed.

The lighting should be special, both artificial and natural, and too great attention cannot be paid to this fea-

OPERATING ROOM, MATTEAWAN HOSPITAL.

ture. Most operating rooms are deficient in light, and one with too much light, if concentrated, does not exist.

But a few years ago a hospital had simply an operating room with few or no accessory conveniences. The McLane operating room at the Roosevelt Hospital in New York City was considered the model operating room in America. This room is by itself in a small isolated pavilion, which contains, in addition, a preparation and etherizing room, a cleaning-up room and a surgeon's room. This was considered ample fifteen years ago.



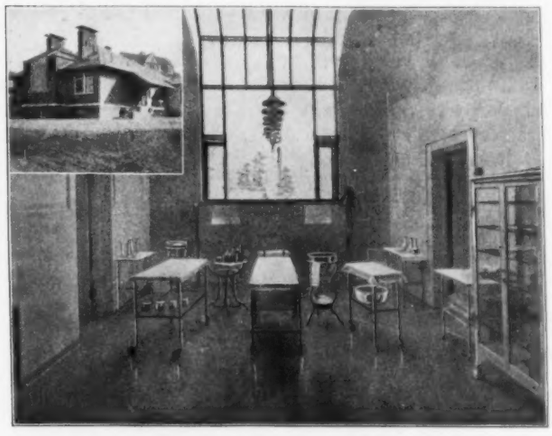
PLAN, SURGICAL DEPARTMENT, NEWTON HOSPITAL.

About the same period was built "The Bradlee Surgical Ward and Operating Theater" of the Massachusetts General Hospital. This, like the McLane, is a small clinical operating room, but with more elaborate arrangements for students. It is interesting to note the crudity of the fittings of this room, the heavy wood furniture, the buckets, basins and pitchers contrasting strangely with the light enameled steel and polished plate glass accessories of the present day.

Many small hospitals built within a few years have no specially arranged room or department for surgical work. A room that might be used for an office, a parlor or a dining room is fitted up and does duty as an operating room. An example of such a room is the one at Matteawan.

The floor may be of terrazo, the base may be coved, the corners rounded and the walls enameled, but these features in themselves are not sufficient to insure a successful workroom in which to treat such a very intricate organism as the human body.

The perfect operating room floor is yet to be invented, although nearly everything has been tried. The vitrified tile frequently used is beautiful and clean in appearance and absolutely perfect in itself, but has been found objectionable on account of the innumerable joints which not only absorb grease and all kinds of offensive substances, but are impossible to clean, and they become in a few months absolutely black from dirt and continual scrub-



OPERATING ROOM, NEWTON HOSPITAL.

bing. If vitrified tiles are used, large, thick ones, to reduce the number of joints and give greater strength, are preferable.

Terrazo has been used in many operating rooms, but it has little to recommend it except its cheapness. It wears fairly well, but the smaller pieces of marble easily work loose, leaving innumerable small depressions that get filled with dirt and are impossible to clean. In fact the sand and cement matrix forming a large per cent of the surface and body is very absorptive and impossible of absolute cleanliness. If terrazo is to be used it should be laid in squares, subdivided by four to six inch strips of Tennessee marble, or the unavoidable cracks will zigzag across the room and reappear as fast as they are cut out and patched.

An almost ideal material for the floor under the operating table is ground plate glass in large sheets painted dark red on the under side, with ground joints, set in cement, the remainder of the floor to be pink or gray Knoxville marble, in large slabs to save joints, with coved

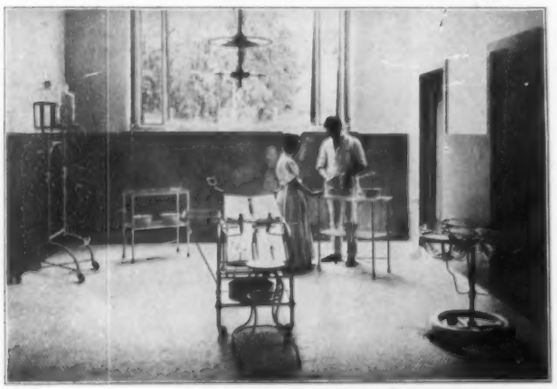
bases flush with plastering, and flat thresholds of the same material.

There can be no criticism of the sanitary perfection of the glass, and the Tennessee marble is very hard and fine

OPERATING ROOM, HITCHCOCK HOSPITAL.

grained, of unexcelled wearing qualities, shows practically no absorption when immersed for a week in oil and is very easily cleansed. The color is fine, and in all these points it seems to be preferable to white marble, especially as to wear and absorption.

Lead has been tried in a large hospital in Colorado, laid in sheets without visible joints for floors and in fact



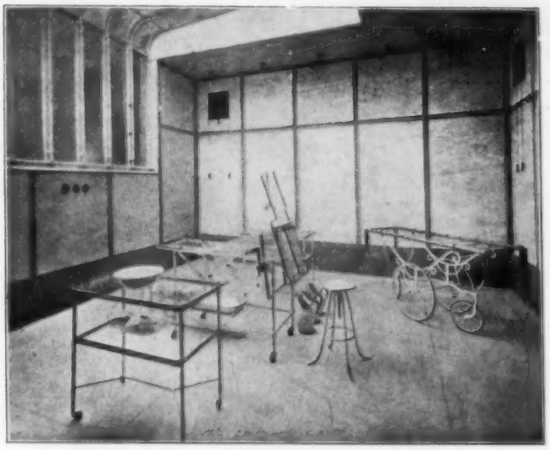
OPERATING ROOM, BURBANK HOSPITAL.

for the entire room, including walls and ceiling. This material is undoubtedly sanitary and free from some of the objections found in the use of other materials, but to one who remembers the old-fashioned lead safes, invariably used under plumbing fixtures fifteen or twenty years ago, the proposition is not an alluring one. A large number of patent floors have lately been introduced, all of which are claimed to be the perfect and long-sought floor. Most of them are combinations of cement with sawdust, asbestos, sand, etc., etc., and are all laid in a plastic state with a trowel on concrete or wood construction. When properly set they are ground down and polished or treated with wax or varnish.

None of these monolithic floors, as far as can be learned, have been wholly successful. Some have stood fairly well, while others have absolutely failed.

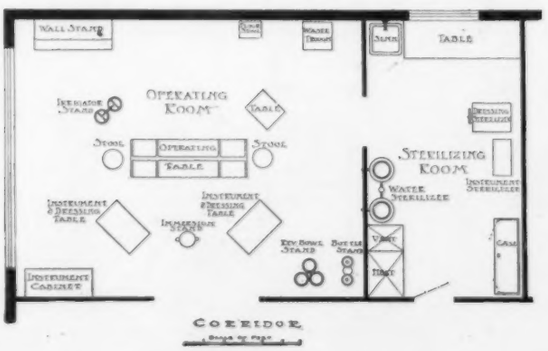
The monolithic idea is a good one, and when a floor is devised that will have no joints, that will wear for an indefinite period without disintegrating or even pitting, and which will require no extraneous coating of varnish that needs continual renewal, the inventor will find an unlimited demand.

An opaque glass called "Novus" has been lately perfected for floors and walls, and it is a most beautiful and perfect material. It is made in large sheets of prac-



SPECIAL OPERATING ROOM, MEDICO-CHIRURGICAL HOSPITAL, PHILADELPHIA.

tically unlimited size, has perfect ground joints and resembles, with its honed surface, the finest and most beautiful white statuary marble. Whether this surface is too delicate for ordinary usage is a question which only use will demonstrate. The well-known tendency of glass to chip at the edges seems probable in this glass, although the manufacturers claim to have obviated this to a degree by an annealing process. It seems impossible thus far to manufacture a cove of this material, so corners and



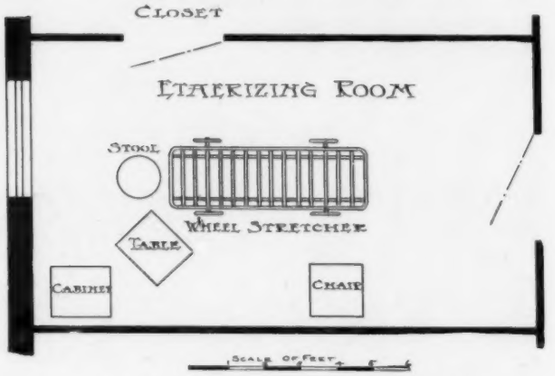
PLAN, OPERATING ROOM, MT. SINAI HOSPITAL.

bases must be square or, what is of no special benefit, a forty-five degree angle.

Some of the operating rooms of the large hospitals, clinical amphitheaters and small operating rooms as well

have been finished throughout in marble, even the doors, walls and ceilings.

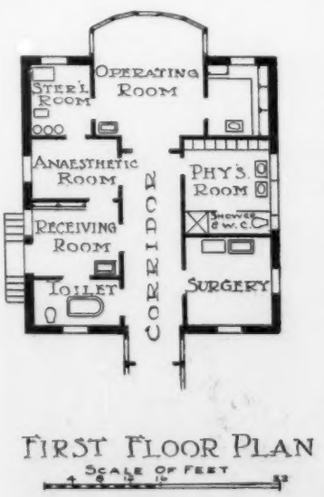
One of the finest operating buildings is that of the Medico-Chirurgical Hospital at Philadelphia, designed by Frank Miles Day & Brother. In this structure the operating rooms are entirely finished in Italian marble with Knoxville marble trimmings, and the idea of excluding all plumbing fixtures has been quite generally adhered to.



PLAN, ETHERIZING ROOM, MT. SINAI HOSPITAL.

The new Mt. Sinai Hospital, New York City, A. W. Brunner, architect, has a most perfectly designed clinical amphitheater, lofty and imposing. The lighting is absolutely perfect and the finishing, even of the lofty ceiling, is of white Italian marble. The floor is, however, of square vitrified tiles that are already somewhat chipped, and there are a number of exceedingly complicated plumbing fixtures having a great amount of apparently unnecessary brass work with consequent complication of joints and parts difficult to clean.

Walls to a height of five feet six inches (the highest point a nurse can reach comfortably in daily cleansing) are usually covered with glazed white tiles and sometimes large slabs of Italian or Tennessee marble. Opaque glass tile has sometimes been used, but experiments show that these glass tiles are apt to loosen from the wall and come off, as there is no suction, and that they sometimes craze, chip and crack. They are also very sharp at the joint, and not being absolutely smooth might inflict injury. If this material could be set in large thick slabs, like marble, and be fastened in place, it would be ideal.



PLAN, OPERATING BUILDING, BRADFORD HOSPITAL.

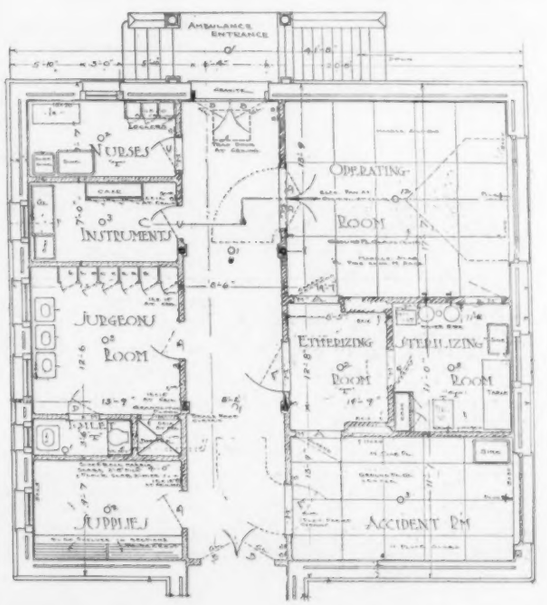
In a small hospital the walls and ceilings of the operating department should be finished with three coats of patent plaster on metal lath, and then when thoroughly dry have two coats of best lead and oil paint and two coats of best enamel paint. This, carried down to the hollow base, is just as sanitary and aseptic as the elaborate and expensive marble or tile treatment, is much less expensive and more easily kept clean. If an accident occurs and a crack or abrasion appears, the surface is quickly and easily repaired.

There seems to be a great variety of opinion and practice regarding the fitting up of operating rooms; some experts claim that no plumbing fixture should be set up, and that the room should be absolutely bare, thus capable of being easily cleansed and made absolutely aseptic and sterile.

If it is unsafe to have plumbing fixtures in an operating room, it is certainly unwise to tolerate a cesspool for floor drainage. Floor drainage is entirely unnecessary. It is much safer to have the floors scrubbed and the slops emptied into a slop-hopper, properly located outside.

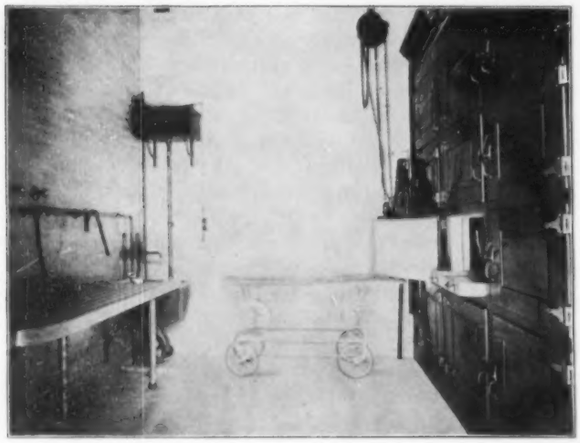
Everything used in an operating room should be aseptic and sterile, and should be movable so as to be readily cleaned and kept in absolutely safe condition.

As will be seen in the accompanying illustrations, the needs of twentieth-century surgical practice require a complicated outfit of furniture for the operating department; and to more clearly demonstrate the needs in planning this department it has seemed wise to publish some plans of rooms in a small operating department showing the furniture in place ready for work. It may be remarked, however, that current practice varies very considerably in this as in all other details.



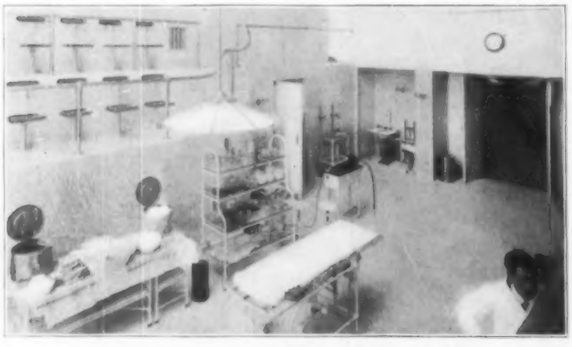
FIRST FLOOR PLAN, OPERATING BUILDING, SAMUEL MERRITT HOSPITAL.

In connection with this subject the views of the autopsy room and the morgue of the new Mt. Sinai Hospital will be of interest as showing the fittings of these necessary adjuncts in a large hospital.



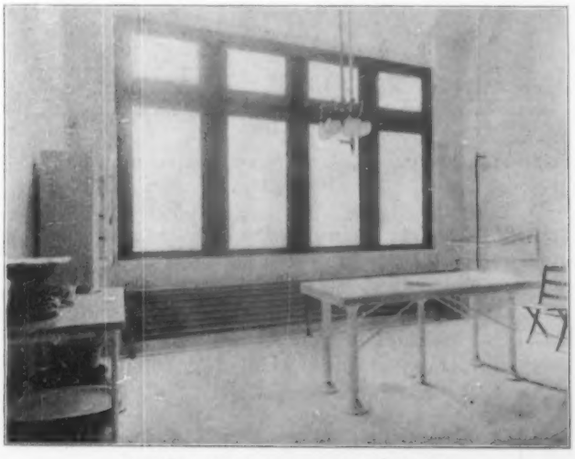
MORGUE, MT. SINAI HOSPITAL.

In a small hospital the requirements in this direction are very simple and are usually provided in the basement of the operating department or in an adjoining



OPERATING ROOM, MT. SINAI HOSPITAL.

building, and usually consist of one or two rooms arranged with sinks and special drainage from table, with good natural and artificial light, special ventilation, and walls and ceilings enameled white.



AUTOPSY ROOM, MT. SINAI HOSPITAL.

The Town Hall of Copenhagen.

BY JEAN SCHOPFER.

THERE is a celebrated verse of Voltaire praising the great Empress Catherine for the efforts she was making to develop arts and sciences in Russia, — a verse which has become a proverb and would be in its place as a heading to this article:

"To-day, it is from the North that light comes to us!"

FIG. 1. THE TOWN HALL, COPENHAGEN, DENMARK.

I do not believe that there exists in all modern Europe a building made of brick of greater importance than the New Town Hall of Copenhagen, the "Raadhus" work of Mr. Martin Nyrup.

As we know, bricks were used in Europe in the Middle Ages and at the Renaissance for many different types of buildings.

FIG. 2. FROM THE PARK.

One cannot deny, however, that since the triumph of the Neo-classical theories which the Italian Renaissance imposed on the world, new ideas came into favor on what was supposed to be a rich and noble style.

Granite, stone and marble became in the eyes of many the only materials that were suitable for an architect that had returned to antique traditions. One could

FIG. 3. INTERIOR OF COURT.

not imagine in brickwork the five orders expounded by Vitruvio, — colonnades, capitals, friezes could only be constructed in stone or in marble, — and as outside Vitruvio there was no salvation, bricks were disdained by the austere architects who believed they were going to give the world a renewal of antique beauty.

It is useless to say that no theory, especially if it is false, can change the economical conditions of a country! So where there was no stone to be cut or carved, bricks were employed; but when there was a sumptuous monument to be constructed, architects preferred sending for stone or marble at a great price to give it the noble aspect which tradition attached to these expensive materials. This is the reason for which, in modern times, the history of brickwork counts but few great municipal monuments, and this is why the Town Hall of Copenhagen deserves a special mention. (Fig. 1.)

The "Raadhus" is an important and considerable monument by its size and by the care and richness of its construction. It rises grandly as a symbol of the power and of the wealth of a great city and of its ancient privileges. In modern times the town hall has taken the place held during the Middle Ages by the cathedral, where all met, not only for worship, but to discuss subjects of common interest, and which under its lofty stone vaults sheltered the soul of the nation during centuries of faith.

The town hall in its turn becomes the center of the city. It is there that decisions are taken on subjects concerning the community; everywhere in Europe the burghers, the middle classes, have chosen to prove their power and their wealth by building grand and handsome town halls. Every one understands the use of money spent for that purpose, and subscribes it willingly; the custom has prevailed to this time. Copenhagen has built a Town Hall, and placed important sums at the disposal of the architect, Martin Nyrup. The first thing for which Mr. Nyrup is to be praised is for having created something quite original, though still according to the traditions of the North. There is no dearth in France or in Italy of municipal palaces that could serve as models to architects of our day, and that are built according to classical formulas taught in schools. Mr. Nyrup has refused to attempt a reconstruction, under a northern sky, either of the Palace of the Cancelleria de Bramante at Rome or of the Capitol, and we are grateful to him accordingly. It would be unfortunate indeed if there were in the world only one style of architecture, and that different coun-

FIG. 4. INTERIOR OF COURT.

tries should lose their traditions and their chief characteristics.

The work of Mr. Nyrup belongs essentially to his country by the choice of the material employed, which is dark red brick, and by the general spirit of the monument. It is an imposing and solid mass with strongly slanting roofs crowned by monumental chimneys that

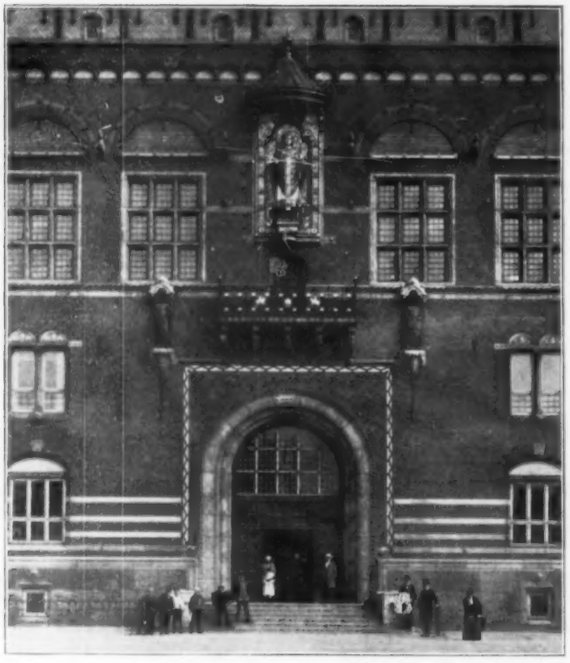


FIG. 5. DETAIL OF MAIN ENTRANCE.

stand out in profile against the sky in the newest and most picturesque manner. I do not know of any other monument in which there exists such an uninterrupted line of chimneys right at the top of the roof and extending on the four sides of the building. It is a happy thought that is both ingenious and picturesque, and by its character quite in keeping with an edifice built in a northern climate.

A large square tower, a belfry, carries its bold spire to three hundred and sixty feet above the ground. It is very simple. Above a little loggia is a large clock with a gilt face, and the spire is covered with sheets of copper which take a beautiful patina in the open air. Four turrets mark the four angles of junction of the roof, and add a picturesque feature to the summit where, in one angle on the roof, the Scandinavian bear shows its vigorous silhouette. Facing the square, the ground floor and entresol are occupied by the different offices of the town; above them is the story that Italians call "noble," "piano nobile," in which are the reception rooms and the councillors' meeting rooms.

We will examine later the interesting details of this façade; for the moment let us look at the façade fronting the park. (Fig. 2.) The chimneys continue on the ridge of the roof the broken line of their battlements. The roofs themselves are treated differently and receive from place to place sharp gable-ends. On this side one

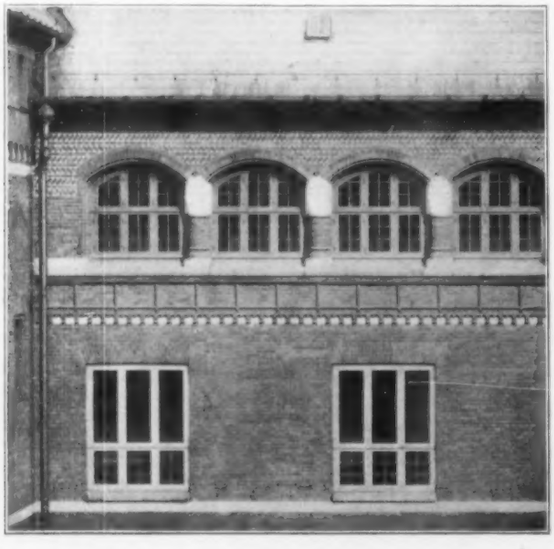


FIG. 7. DETAIL OF FAÇADE.

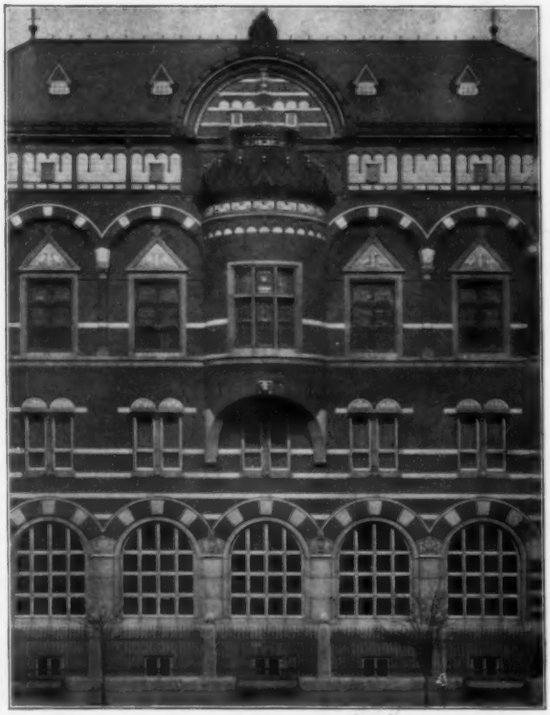


FIG. 6. DETAIL OF FAÇADE.

sees, even better than on the other façade, the very large dimensions of the building, its general character, and the determination to decorate it in a sober, rational and elegant manner.

The two views of the interior courts (Figs. 3 and 4) show us how Mr. Nyrup intermingles white stone with the red bricks. The basement of the building is of granite; then are placed up to the first floor thin lines of white stone, whose proportions with regard to the layers of brick are excellent. The arches of the windows of the ground floor have keys in white stone that alternate with those of the second story of which the windows are built with a discharging arch in relievo; lastly, in the story that is under the roof, a series of ornamental arcades in brick, on a light ground of white stone, form a decora-

tion special to brickwork, which the architect has employed most skillfully.

The courts of the "Raadhus" show us, also, that one has not tried to establish an absurd symmetry in the design of the façades; on the contrary there, as in the Middle Ages, the different interior parts are distinctly seen and provided for from the exterior, realizing a most picturesque

FIG. 8. DETAIL OF DOORWAY.

dissymmetry. For example, the small turret in the fore part (Fig. 3) has not attempted to have its windows at the same height as the windows of the façades; on the contrary, the windows are not on the same level. Why so? Because this turret was built to contain a staircase, and, far from hiding it, it confesses it ingenuously. As soon as one sees the windows rising one above the other, one understands to what use the turret is put. In the same manner the windows on the two façades of the court are not all alike according to the destination of the rooms, either for offices or council chambers or reception rooms. It seems as though I was quoting a truism; in fact, nothing is more rare in the architecture that the seventeenth century has given us. In Neo-classical architecture, which, notwithstanding all efforts to the contrary, reigns supreme in the schools of art of our day, the principle of symmetry and uniformity of the façades is absolute. One seeks to hide all the different functions under apparent uniformity. Looked at from this point of view the Palace of the Cancelleria de Bramante at Rome, or better still the Palace of Versailles, you will find the confirmation of this rule.

In this palace could one suppose in looking at the exterior that there are inside reception rooms, living rooms, staircases, passages, servants' rooms and dressing rooms? No, all along this interminable façade the same large openings, the same windows, as if in the interior was one immense room or gallery. It is only by this uniformity of design that it seemed possible to attain the majesty of the "noble style." In the Middle Ages it was not so, neither during the first French Renaissance. I will only mention as proof the staircase of the mansion of Jacques Cœur at Bourges, and the celebrated one of the Château de Blois, that has been copied in the United States in the residence of Mr. George Vanderbilt, "Biltmore." Here at least staircases do not hide themselves from view!

It is so in the Town Hall of Copenhagen, where the result of the fitness of the façades to the different services they cover has created an architectural work full of animation, life and picturesqueness, with roofs of different degrees of steepness, towers, turrets, monumental dormer windows, chimneys in full evidence; here corbeling bow windows, there loggias with balconies above an entrance.

We must now look at it in detail; the principal doorway on the square (Fig. 5) is surrounded by a frame of enameled bricks, and the way the bricks are placed form the decoration. Above it is a small balcony, that is almost superfluous, on each side of which are two statues in bronze, and above this, robed in his sacerdotal garments, stands forth in glory the gilt statue of the Bishop Absalon, founder of the town. The way in which the arches above the windows are treated is worthy of remark, then the small ornamental arcades that mark the last

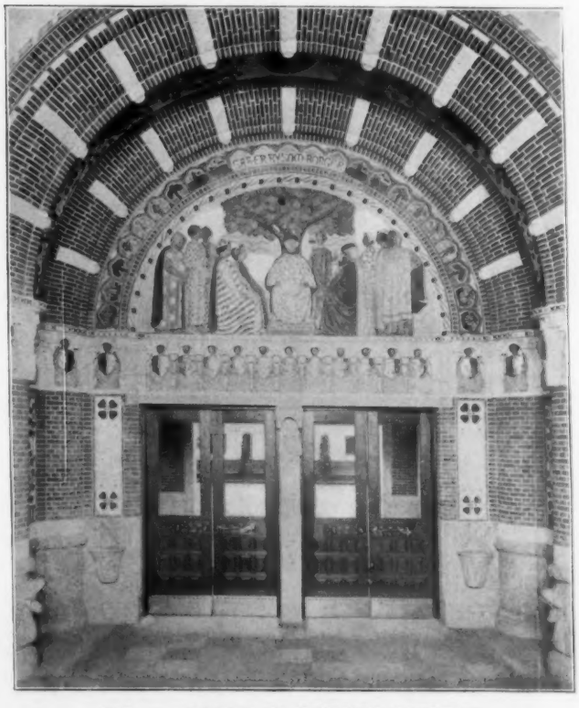


FIG. 9. DETAIL OF INTERIOR DOORWAY.

story, and lastly, under the roof, the frieze of dark bricks in design upon the lighter ones placed in zigzag. Everywhere, as is plainly seen, the decoration is taken from the material itself; it belongs to brickwork; it is one with the edifice; it is not put on as a decoration; and that is an essential quality of all good architecture. Figures 6 and 7 show in detail, on the other façades of the building, the application of the same excellent principles, and all architects would derive benefit from the study of it.

Figure 8 is an example of a series of doors which, by the way they are designed, constructed and decorated, are worthy of attention.

Such is the exterior of this monument. It is serious and sober, as it should be, according to the northern climate in which it is built, but we have seen that this soberness of construction does not exclude a style of decoration in happy harmony with the lines of the edifice and with the material employed.

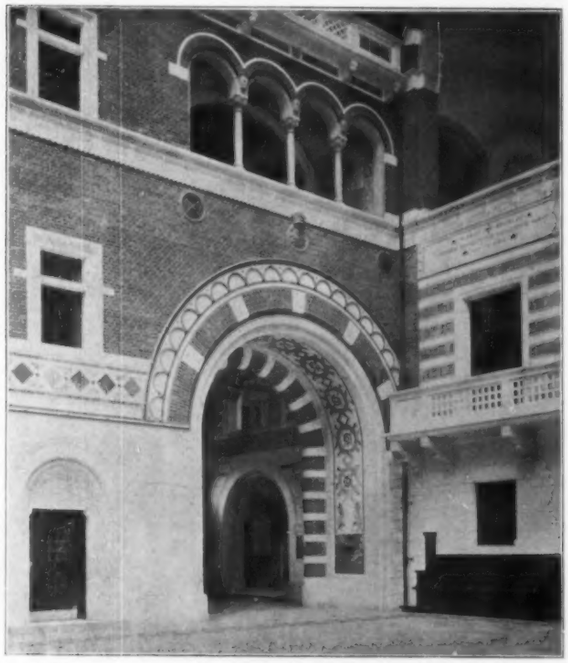


FIG. 10. DETAIL OF INTERIOR DOORWAY.

In the interior we have, on the contrary, a brighter style of decoration, gayer and lighter, and to complete which the architect and his helpers have often had recourse to enameled bricks and faience. The folding doors at the entrance (Fig. 9) are a sumptuous composition: a basrelief in terra-cotta by Miss Agnes Slott-Muller represents in their antique costumes the magistrates who were in ancient times the town councillors, and forms a link between the present and the bygone past. Above this basrelief, saints and bishop, seated under small arches, are the protectors of Copenhagen. The whole thing is of great richness in many colors, set in the frame of the archivaults of brick and white stone.

Another door in a semicircular arch in the interior of the hall is covered with enameled plates (Fig 10) made by the famous ceramist, glory of Danish ceramic, Emile Koeller! The design, which is difficult to understand in our plate, represents flying sea gulls. To be noted above are very delicate romanesque arches, supported by small columns. This door leads into a large glazed hall shown in Figure 11. It is large enough to shelter a crowd of people and is paved with a brilliant mosaic ; a balcony runs round it, and above opens a very large gallery with semicircular arches that rest on small colums of granite. The design of the arches in brick and white stone, their way of leaning on the small columns, the composition of the rose in the tympan, show with what taste, what understanding of color, what a delicate feeling of decoration the smallest details of the monument have been conceived.

The readers of THE BRICKBUILDER are now able to see in what way the interior decoration of the Town Hall of Copenhagen has been understood. I am certain that it will awaken in them some instructive reflections. We all know how the interior decoration of a large monument is generally understood. The great Washington Library, opened a few years ago, or the Hotel de Ville of Paris, shows it to us in the clearest manner. I name these two monuments, I could mention many others. Marble and gilding shine with unrivaled brilliancy in these edifices; the ceilings, the tympans, the panels above the doors are cumbered with allegorical figures in stucco, in the richest of frames; garlands of roses, nude children at play, reclining figures of women, grotesque masks, etc., etc ; a profusion of carvings, heart-shaped festoons, egged moldings, palm ornaments, rounded or carved pediments, heavy brackets and always and everywhere the inevitable gilding, unmerciful and crushing. Nothing can be more monotonous, in its richness, than the luxurious decoration of modern palaces. It is worthy of remark that it is always alike, it has no nationality, and that we find it the same, producing the same *ennui* at New York, Paris or Berlin. Mr. Nyrup at Copenhagen had the courage not to follow the fashion; he was not fascinated by the glittering tinsel of modern decoration. He had conceived an original and national monument; and he held fast and was true to himself in the interior decoration of the Town Hall.

Such is the work of Mr. Nyrup. As I said at the beginning, the Town Hall of Copenhagen, opened in 1903, is one of the most considerable monuments of modern times, and most likely the most important of the edifices built in brick. For this reason it was worthy of attracting and retaining the attention of the readers of THE BRICKBUILDER. As we have seen, it is not only the cause of brickbuilding that this monument serves to illustrate and defend, but in general the wider cause of all good architecture.

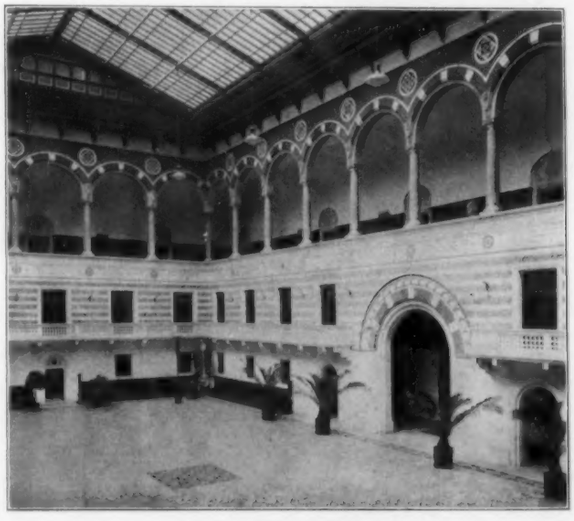


FIG. 11. A HALL.

Examples of the Greek Revival Period in Alabama.

BY J. R. KENNEDY, JR.

TUSCALOOSA.

IN the great wilderness of western Alabama, at the falls of that charming little river, the Black Warrior, the town of Tuscaloosa sprang almost mushroom-like into existence.

Founded and laid out into streets in 1819, it grew rapidly, and in 1826 was chosen as the capital city to supersede Cahawba. In 1828 it was chosen as the site for the State University.

to-day is the State Capitol, built in 1826 at a cost of $250,000. It served as the Capitol building until 1846, when Montgomery superseded Tuscaloosa as the capital city. Since then the grand old pile has been almost forgotten until recent years and now is used as a college for girls. The architect was a Mr. Nichols, an Englishman brought here from Philadelphia by the state to do this work and the buildings of the State University.

It is situated at the end of Broad Street, a sleepy old thoroughfare, on a commanding site, overlooking the Warrior River and the suburb of Northport. In plan the building is a Greek cross, with an excellent dome at the intersection of the arms. The lantern of the dome is eighty-five feet above the first floor, the brickwork of the

THE STATE CAPITOL, TUSCALOOSA. (1826.)

These two influences — the gatherings of prominent men of the state, men of wealth and refinement and chiefly of the planter type, together with the faculty and student body of the University — undoubtedly gave to Tuscaloosa its air of refinement and culture which it holds to this day, — culture and refinement not only in a social meaning, but in literature and architecture. The revival of Greek architecture came along in the early part of the eighteenth century with the revival of Greek literature. Thus we find here the Greek architecture on every hand. Every house has its Greek temple portico, sometimes small, sometimes immense, sometimes built to the largest brick or stucco mansion and sometimes to the smallest one-story cottage, but invariably we find the white-pillared portico to the *ante bellum* house. As to the order used, we find them of all types, Doric, Ionic and Corinthian.

The most important of the old buildings in Tuscaloosa

dome rising to the height of the entablature of the Corinthian order. From this line upward the dome is a wooden shell. The decorative work, as in the rest of the building, is white or cream-tinted stucco. The order used in the dome is of the Corinthian, of the Choragic Monument of Lysicrates type. The shafts of the pilasters are buff colored and the capitals bronze.

The Senate Chamber, of goodly proportions, is now used as the "Concert Hall" of the girls' school. These old walls, which once thundered with the fiery eloquence of Clement C. Clay, William R. King and William L. Yancey, have descended to the realm of the *sonata* of the novice at the pianoforte, or to the thesis of the girl graduate.

In the House of Representatives, directly opposite the Senate Chamber, a circular row of Corinthian columns supports the floor above. The columns, both capitals and shafts, are really good and the idea not a bad one.

THE PRESIDENT'S MANSION, UNIVERSITY OF ALABAMA. (1828.)

THE BATTLE HOUSE, TUSCALOOSA. (1840.)

The brick used in the exterior walls is of a dark red, native burned, and laid up in white joints. The stonework, which is good, is a light-colored, rough-grained sandstone, quarried only a few miles from Tuscaloosa.

The south portico (the north portico is a duplicate of the south) is of the Greek Doric order from the Parthenon, except that the lower third of the shaft is unfluted.

The "Cochrane Place" — what a scene of hospitality this name must bring to the mind of the old inhabitant, who perchance was a guest there in the old days! But now what a change! Its hospitality is of the past. It is used for a negro school. It was built by Dr. William Cochrane in 1840. The shafts of the Corinthian columns are brick, the fluting cut *in situ*, the large capitals being of cast iron. Each column is said to have cost the owner six hundred dollars. The door knobs and escutcheons were until recently of sterling silver. Now the grand old place is much dilapidated; the quaint evergreen hedges of the front garden have been cut down, the many rose bushes and violet beds have been trampled upon, the massive old mahogany furniture is gone. Still the memory of its old times seems to hang around the place; one feels somewhat awed when he looks upon what is and thinks of what was.

THE CHRISTIAN HOUSE, NEAR TUSCALOOSA. (1835–38.)

"COCHRAN PLACE," TUSCALOOSA. (ABOUT 1839.)

THE POST OFFICE AND HOSPITAL, UNIVERSITY OF ALABAMA. (1831.)

The Battle house on Greensboro Street is one of the most charming of the old houses of Tuscaloosa. Situated in the center of a block, it is surrounded by a well-kept old-fashioned garden, — a garden cut up by little walks of white sand, teeming with rose bushes and violet beds. The outer edge of the garden is formed by a high evergreen hedge, thus securing privacy to its shaded depths. The brickwork of the house has been painted many times; originally it was red and pointed white. The large white wooden columns are of good proportion. It was built by Dr. Alfred Battle in 1840; and while it has been kept in excellent repair, no restoration has been done to the house proper.

Besides the State Capitol, Nichols was the architect for the buildings of the University of Alabama, the construction of which was begun in 1828 and finished about 1831. Most of the buildings of the University proper were destroyed by fire during the Civil War; two of them, however, escaped the conflagration. These two were the President's Mansion, and the Post Office and Hospital, now the residence of the librarian of the University. The entablature of the President's Mansion is not of Greek origin, as most of them of that period were, and particularly so of the work of the archictect Nichols; this entablature is an almost exact copy of that in the Basilica at Vicenza by Palladio.

Considering these old houses of Tuscaloosa as a whole, they are much better in detail, more dignified in design, than those found elsewhere in the South, with the exception of Savannah, Charleston and surrounding country. We find here better copies of the Greek detail and fewer architectural aberrations. As is well known, the classic revival in the South was not bookishly pure as in the East. The old builders here took greater liberties with the accepted authorities of the style than did those in the East.

The plans of these houses were all on about the same order, a wide hall down the center and rooms on either side. The kitchen was usually in an outbuilding, a few yards from the "big house." This was done to keep a multitude of servants from tramping through the halls, and to eliminate the odors of the kitchen as much as possible.

Outside the few important buildings, such as the old Capitol and University, the houses were built without architects, the builder himself being the designer and superintendent. As has been said before, men of that time were men of leisure, culture and education; were fond of Greek literature and quite naturally of Greek architecture. Thus with a goodly number of slaves — and many of the slaves were fair mechanics — they were able to build for themselves houses after their own ideals — houses of great proportions, high ceilings, large and many windows, thick walls and immense rooms; a house that is, above all things, in perfect harmony with the climate.

THE Boston Board of Appeals, which is the body empowered to decide matters of controversy between owners or architects and the building department, has recently made an interesting decision as to what constitutes a building. The question was brought before the board by Spofford & Eastman, architects, on an appeal from the building commissioner's refusal to permit the erection of a block 228 feet long and 56 feet deep, divided into nine separate and individual sections, three stories high and covered with a flat roof. Each section had six separate apartments, two on each floor. The basement in length and width was entirely open, affording free communication to all parts of it. The architects claimed that this structure, with its four external walls, was a single house and not a block, and that therefore the section of the building law with regard to brick party walls did not apply. This contention was sustained by the Board of Appeals, who ordered the permit for the structure as a single building to be issued.

Architects' Specifications According to the Practice in the City of New York. II.

BY JOHN CASSAN WAIT.

THE practice which is becoming quite prevalent in New York among architects is to require the contractor to make the surveys and all measurements of the work and to hold him responsible for any error that may arise in the erection of a building. This has also been supplemented by a requirement that the contractor shall make and provide all the working and shop drawings and models required for the full performance and completion of the work. This, it is assumed, is the outgrowth of a practice among the iron mill owners who, having certain machinery adapted to certain classes of work, prefer to join the members of a roof or a superstructure by processes of their own, and they therefore universally prefer to work out such details according to their own methods and the equipment which they have, than to leave it to architects who are less informed in the matter and less able to design structural details.

It is common practice with steam heating, electrical and plumbing concerns to provide architects with their own plans for heating, plumbing and lighting buildings. Indeed, it has become almost the rule in some places to invoke the services of large steam heating, plumbing and electric lighting companies to furnish architects with complete plans and specifications for plants required for buildings. Such companies keep a large corps of engineering experts for this work. It is a great accommodation to some architects, enables them to earn their fees without much labor or knowledge, and it is also a benefit to the company or contractor who specifies and designates his own apparatus, connections, couplings, etc. It, however, does not conduce always to healthy competition in public work where contracts are expected to be awarded to the lowest bidder, as it gives to favored contractors an advantage in having their own materials specified and their own methods and processes described. This practice is so prevalent that professional mechanical engineers who make a specialty of steam heating, ventilating, plumbing and electric lighting have been deprived of a substantial part of their professional practice; and when a clause in a contract for architects' services prohibited architects from requesting or requiring contractors and subcontractors to prepare and furnish plans and specifications for heating, plumbing or electrical plants to architects, it raised opposition upon the part of the architectural profession, leading to the appointment of a committee who petitioned that the same clause forbidding such practice should be omitted from contracts for their services. This only illustrates the tenacity with which professional men adhere to practices which must be acknowledged to be vicious and in many instances against the interests of the client or owner, where the practice is to the pecuniary benefit of the professional man. A practice which puts the architect under obligations to the contractor or a subcontractor, and by which the architect materially

profits at the expense of the contractor or subcontractor, is a misfortune to the owner and at times, at least, to the architect, who may thereafter be required to assert himself against the interests of the contractor. How can an architect accept plans and drawings of a complete system of heating, lighting or ventilating for which he received his regular commission, as if he himself had designed and furnished the same, and thereafter conduct the work, if it need be, against the interests of the contractor and for the protection of the owner? The architect holds a fiduciary relation to the owner, and in such a capacity he should maintain such relations with the contractor as will enable him at all times to fulfill all his obligations to the owner. Does he do that if he accepts material profit and advantage at the hands of the contractor?

Architects are very much inclined to exact from contractors so-called "guaranties" as to the workmanlike character and superiority of the materials and work. This word "guaranty" is a misnomer; the proper word is "warranty." Architects usually do not embody the warranty in the contract or specifications, but provide that the contractor shall furnish "a written guaranty" (warranty) to maintain secure, tight and in perfect condition the work, roof or other structure built, for a period of from one to five years. The criticism of this practice is that it leaves to the owner or to the architect the duty and obligation of securing from the contractor the said written warranty, which the contractor may not freely give or may insist upon terms suited to his work and his interests. A much better practice is to embody the warranty in the contract or specifications itself, and to say that the contractor shall and does hereby warranty that the work shall remain in good repair, water tight, etc.

It is a mistaken notion that an architect may by his specifications require that work shall be done in accordance with his plans and specifications, naming certain materials and the performance of certain work to make waterproof or water tight a roof or cellar, with a guaranty of the roof or cellar for five years, it being the popular impression that such a contract requires the contractor to produce and deliver a waterproof structure.

It has been repeatedly held by the courts that such a specification and warranty do not require the contractor to do anything except to furnish the materials required to build according to the plans and specifications, and that the architect or owner assumes the responsibility for the structure's being water tight or waterproof. It has been held that a specification that all the work shall be done in good, workmanlike manner and of suitable material, and each part shall be adequate in design, strength, capacity and workmanship for the purposes for which it is intended, and that the work shall be examined by the superintendent and finally accepted if satisfactory, was not a warranty that the plant as a whole should be adequate in design, strength, capacity and workmanship for the purposes for which it was intended.

These decisions are based upon the legal principle that a warranty will not be implied, and that it must be so explicit as to leave no doubt in the mind of the court that a warranty was intended. The same criticisms will apply to cases where an architect submits plans and specifications and specifies certain materials to secure certain results, and then adds to his specification that the contractor shall give a written guaranty or does hereby warranty that the said structure shall be safe, sound and secure, and shall support . . . pounds per square foot or per lineal foot.

It is needless to say that when an architect requires a contractor to do work in a certain manner, of certain materials, dimensions and weight, and according to a plan furnished, he cannot hold the contractor responsible for the safety of the structure or for the sufficiency of his plans if it fall, unless he be given freedom to change, modify and adopt his own views and ideas, the result of his training and experience. However unreasonable it may look when thus stated clearly, it is nevertheless a fact that architects of high professional standing have done and do these very things, as a close study of their specifications will prove.

These faults and weaknesses in architectural specifications do not often come before the profession at large, because architectural specifications are usually typewritten in triplicate or quintuplicate, and are not distributed to the profession or to the public, or, so far as the author knows, is it a practice of the architectural leagues and societies to publish and open to discussion the practices and preferences of architects as outlined in their specifications, as is done and is the practice in the engineering societies, civil, mechanical and electrical. The author is well satisfied that if the architectural societies would give some time to the publication and open discussion of their specifications and of the best practices in the art of building, it would result in much good to the profession at large as well as to individual members. If architects were required to support their professional practice and their selection and adoption of certain materials and styles of construction before fellow members of their profession, as in open court, it is confidently believed that they would profit thereby, and that the specifications of architects would not be so much at variance nor so subject to adverse criticism. Attendance at some of the meetings of the engineering societies, and listening to the discussions upon papers presented at those societies, would be salutary experience to any architect, and would rouse him to an appreciation of the extreme care with which engineering specifications are prepared and of the skill with which members of that profession protect themselves by experiments, tests and watchful experience, and by which they justify the specification and use of certain practices, materials and apparatus.

A feature of specifications from the offices of large firms or very busy architects is a clause delegating to representatives, clerk of the works, inspectors and assistants the duties and powers of the architect. This is an extremely bad practice and frequently leads to litigation and to unsatisfactory results, both to the owner and the contractor. Representatives and superintendents of architects frequently report and describe circumstances and conditions in their own way and in their own colors to the architect, who, wishing of course to support his own representative or employee, makes decisions which he afterwards finds difficult to sustain, especially in court, where his powers are curtailed and he has not the deter-

mination of the whole question. That this often happens has come to the observation of the writer, and with architects of high standing in the profession; and contracts should not be written delegating important duties to assistants who have neither the training nor the experience of the architect himself, and by whose judgment the contractor never intended to be bound or concluded. Of course the author understands as well as anybody that an architect cannot attend to all the details of the many pieces of important work that he may have in hand, but in the contemplation of the law he does individually pass upon such work when it is measured, examined and reported to him, and every contractor can reasonably insist that matters of importance should receive the personal attention and determination of the architect. If it were otherwise the architect could select men of the most inferior accomplishments and training to represent him upon the work, and neither the contractor nor the owner would have any redress, and it is within the reasonable construction of the contract that when the owner and contractor agree to abide by the decision of an architect whose name and experience are known to both, as is usually the case, they should have the honest, free and unbiased judgment of that architect, and the architect should provide and furnish competent, trained, skillful and experienced representatives or superintendents to measure, examine and report to the architect the actual, uncolored conditions that prevailed at the work.

A recent decision in the United States Supreme Court has held that a contractor is entitled to the judgment of the particular officer designated to pass upon and determine questions in connection with the work, and that the contractor is not bound by the judgment of another substituted.

It is customary to define and describe plans and specifications in a contract and to make them a component part of the contract, and it is also a good practice to describe in the specifications the contract to which they belong by the parties and the date thereof, and to also identify the plans by which the work is to be done and by which the contractor submitted his bid or proposal.

A good practice recently adopted in the contracts of the city of New York is to make one covenant or agreement clause at the beginning of the contract, making the obligation bilateral or mutual, and in consideration of the mutual promises or covenants, and then to omit any further clauses embodying a covenant or a consideration. This practice avoids the use of introductory clauses for each paragraph of the contract or specification in the form of "And it is hereby further undertaken, promised, agreed and covenanted by and between the parties hereto that." This is a great saving in reading matter and in printers' bills in any long contract. The same policy has been followed in regard to the duties and powers of the architect or engineer, it being the practice to provide in one clause in the contract that the architect shall have the determination of all questions in regard to the work and materials or of the meaning of the plans and specifications, and shall determine every question arising in regard to the work, and that all work and materials must be to the satisfaction of the architect. This being embodied in the contract proper saves the constant repetition in the specifications and the repeated application to every kind of work and materials of the clause "whose decision shall be final and conclusive," or of the phrase "to the architect's satisfaction."

Much might be said in general criticism of the tendency of architects to reserve to themselves almost unlimited powers in the determination of questions regarding the building or structure, and the least experienced seems most inclined to reserve to himself the exclusive power to arbitrarily and conclusively determine everything, as if the experience of builders went for nothing. Frequently such architects find it necessary to call upon the builders to help them out before the structure is completed, and to fall back upon old methods and practices and to gladly abandon new and much lauded processes, materials and theories. Architects and contractors would both derive much benefit if they would mutually aid one another, and a great step toward a mutual understanding between them will be made when architects cease to distrust builders and regard them as untrustworthy. Some architects show this distrust in every page of their specifications, and in such cases is it any wonder that the builder feels under suspicion and looks out for himself? A criminal is given the benefit of the doubt, and architects should not deal with their bidders and contractors as if convicted of bad practices before they start their work.

Without going into further detail it may be gathered that it is the author's feeling that architects' specifications as employed in the city of New York need revision in many respects, and that something more than individual effort is needed to obtain practical results. Committees should be appointed, as is the practice in the engineering societies, to determine the best results in the use and manipulation of materials, such as hydraulic cements and Keene's cements; in the application of the various patent plasters; in the adoption of the several floor and partition systems and the various roofing processes; and especially the practices to be adopted in hospital and asylum structures, where no angles are permitted, but everything is rounded or curved. As it is now, no standard of practice exists, and every architect carries out his own methods, based upon his individual experience, which may be much or little. Architects need the assistance of one another and should profit by each other's experiences, unhappy as well as successful, which they cannot do unless they are communicated one to another.

(*Concluded.*)

BRICKS COMPULSORY IN NORWAY.

A BILL is being, if it has not already been, laid by the Norwegian government before the Storthing making it compulsory for brick to be used for buildings throughout Norway. Hitherto the municipality boards have had the power of deciding whether brick or wood is to be used. The recent conflagration at Aalesund, together with an alarming number of rather serious fires in several parts of the country, has brought about a revulsion against houses constructed of timber, which naturally prevail in a country like Norway, where wood is so plentiful. The news of the new bill has been received with general satisfaction. — *The British Brickbuilder.*

Two Expert Reports on the Baltimore Fire.

ARCHITECTS and engineers have awaited with a great deal of interest reports from two prominent bodies who were known to be making most careful investigations of the Baltimore fire. These were the Committee on Fire-Resistive Construction of the National Fire Protection Association, which is an organization of fire insurance underwriters and allied interests, with headquarters at Chicago, and the Insurance Engineering Experiment Station of Boston, which is directed by Edward Atkinson, with Professor Charles L. Norton in charge, and which is supervised by the Board of Directors of the Boston Manufacturers Mutual Fire Insurance Company. The report of the latter is characterized by much of the dogmatic element which has made some experts question so strenuously the conclusions enunciated. Mr. Atkinson, in presenting Professor Norton's report, sweeps pretty near everything out of existence, declares that terra-cotta has failed, that he knew it would fail, and was able to predict just where the fault was, and why it was so thoroughly bad; on the other hand, claiming that concrete is everything that is good and nothing that is bad, with a conclusion that as yet no fireproof building has been constructed for general purposes, while admitting that a practically fireproof office building may be constructed and so occupied as to be proof against fire generated within or even against a conflagration without. When it comes to presentation of facts, Professor Norton seems strangely at variance with the majority of other observers. For instance, he makes the statement that while in general the steel frames of the fireproof buildings were not injured more than ten per cent and in some cases by much less, the loss of terra-cotta beam and post covering was at least seventy-five per cent. Nowhere else have we seen any official statements of damage to terra-cotta floors amounting to even forty per cent, while in the great majority of buildings the damage to terra-cotta fireproofing was but trivial. And he concludes that the general condition of fireproof building is such as to indicate to his mind the unfitness of terra-cotta for beam and post covering and floor construction when compared with concrete or brickwork. One cannot read his report without regret that so much careful thought, time and study should have been expended in endeavoring to establish what were apparently preconceived opinions at the expense of ignoring what actually occurred, and to our mind, admitting the conscientious work which we know Professor Norton has put into this report, and his perfect willingness to seek for the truth, we feel that his conclusions are so far from those of the majority of engineers who have studied the Baltimore fire that the report of the Engineering Experiment Station is practically worthless as a study.

On the other hand, the report of the National Fire Protection Association is characterized by the utmost care in every respect, there is not the slightest evidence of personal bias one way or the other, and the whole evinces an earnest attempt on the part of the committee to state the truth, the whole truth and nothing but the truth, and to put it in such way that real lessons can be drawn therefrom. Their conclusions were not unexpected. The defects of fireproofing which the committee found were those which have been repeatedly criticised in nearly every engineering and architectural paper. It is admitted freely that no one material passed unscathed through the Baltimore fire. It was a crucial test in every respect, and the fact that the proportion of damage to concrete work is less than that to burnt clay is logically explained by the fact that in none of the severely tested buildings was there an exhaustive test of the former material. Ordinary red brick laid properly in cement mortar was unquestionably the least affected of any material. It offered nothing for the fire to attack, and it would have been a great surprise had it been affected to any material extent. Where tile proved defective the cause was never found in the material, but entirely in the details of construction, and especially in the very crude methods of building wood, either as furring or as finish, into the material which was intended to serve no purpose but protection for the framing. Tile floor arches suffered more from their thinness than any other material, and one cannot read through this report without appreciating that the Baltimore fire showed that burnt clay is beyond question the nearest approach to a perfect fire resistant now at our disposal, though it is too often misused by those who put it in place.

It is a source of personal gratification to this journal to compare this report with the opinions of our experts in our special Baltimore fire number. The very names of the gentlemen who filled these columns in that issue were a guaranty of at least an honest expression of opinion, and while we have felt it our province to present the best possibilities of burnt clay rather than to simply enumerate the extent to which it could be damaged, we would recognize throughout the good points of other materials. That is precisely the attitude taken by the National Fire Protection Association, and their report is a very commendable one and constitutes a pamphlet which must find a place in the library of every engineer.

COMPARATIVE FIREPROOFING METHODS.

MR. EDWIN O. TORBOHM, inspector in Greater New York for the Home Insurance Company, has prepared a standard by which a grading of buildings as fire risks may be effected. It is expected of the modern fireproof construction that the damage to the structure itself shall be small and the loss or damage to the various contents in direct proportion to the quality of the fireproofing separating the several rooms and floors one from another. Beginning with the structural frame, he ranks cast iron first, wrought iron or steel second and built-up steel third in relative desirability. This classification may be correct simply from a fireproofing standpoint, but it is certainly wofully behind times in every other respect, and in fact the experience of several recent catastrophes has shown that cast iron is the most unsafe material which can be used for a skeleton frame, notwithstanding its slightly greater resistance to heat and rust. Under the heading of column protection, he mentions as the order of desirability:

(1) Terra-cotta; porous or semi-porous, three to four inches thick, or the same two inches thick.
(2) Solid concrete; enclosing thoroughly all surfaces of the column, concrete and metal in contact, or encircling the column with a wall of two inches or more of concrete on or between sheets of metal lathing.
(3) Plaster; solid or hollow plaster and metal lathe enclosure not less than four inches in total thickness, or same not less than three inches thick, or plaster or composition blocks two to three inches thick, or close finish plastering.

For the protection of girders and beams he indicates the following order of preference:

(1) Terra-cotta skews or web blocks and soffit tile.
(2) Concrete arch or plate extension in concrete systems.
(3) Plastering on wire mesh or expanded metal variously spaced from the beams or girders.
(4) Close finish plastering.

The neglect of adequate column, girder and beam fireproofing is the most serious in effects and the one least noticed in the finished structure. Plaster, however liberal in its application, is of unknown and uncertain value. While it will stand some heat it will stand very little water, and after once being exposed to fire its usefulness is generally ruined.

For floor arches the specification includes in order of excellence:

(1) Hard-burned brick — by which is meant the old-fashioned solid brick arch; not the modern combination of brick with light steel T bars and cinder concrete.
(2) Porous terra-cotta; end construction or side construction.
(3) Dense or hard-burned terra-cotta.
(4) Reinforced Portland cement concrete; gravel or crushed stone concrete (barring limestones) or cinder concrete. Approved systems only, such as Roebling, Columbian, Expanded Metal Company's, etc.
(5) Calcined plaster; cast blocks or made-up systems, such as Metropolitan.

Burnt clay is also classed first in order of preference for partition work, the various materials for which are classified as follows:

(1) Brick or terra-cotta not less than four inches thick; porous preferred to dense or hard tile.
(2) Brick or terra-cotta not less than three inches thick.
(3) Terra-cotta two inches thick, or plaster or composition blocks, or expanded metal with concrete or plaster filling and finish at least three inches thick.
(4) Plaster less than three inches thick.

Some of his remarks in regard to the construction of terra-cotta partitions are of interest:

"All partitions," he declares, "should be built up from the permanent structure and not from the wooden flooring or on wood sleepers, as so often found. Wood studding and wooden framing for doors and windows are not approved. Metal-clad strips bolted to protected angle or channel iron, extending the entire distance from floor to ceiling where properly fastened, present an easy and safer method. Partition walls above large openings should be arched or equally well supported by non-combustible material; never by wood. Terra-cotta blocks or tiles, even when not in excess of two inches in thickness, when properly supported by non-combustible reinforcement, may be considered as superior to most of the plaster or composition blocks used in partition work. A double wall of plastered wire lathe or expanded metal framed in channel or angle iron and four inches or more in thickness, filled or unfilled, is acceptable for small dummy enclosures or similar moderate area, where not subject to mechanical injury, but should not be relied upon for large partitions. Terra-cotta and composition blocks, although of adequate thickness, are frequently set to form large partitions without reinforcement or satisfactory bracing. This is particularly noticeable in corridor partitions. When so arranged they must be considered defective. Wooden studding as bracing for fireproof blocks or other forms of construction in partitions is not satisfactory, as the thin plastering will not prove a sufficient protection to the wood enclosed."

He also presents an interesting summary of the relative undesirability from the underwriter's point of view in risks assumed on buildings or their contents:

(1) Unprotected iron or steel.
(2) Hall or interior partitions containing wooden sash or doors.
(3) Well holes or light shafts.
(4) Continuous hollow spaces under wooden flooring.
(5) Wall or ceiling finish, or wainscoting of wood.
(6) Wooden decks or galleries; wooden partitions or shelving in excessive quantity.
(7) Stone trim or ashlar, especially on exposed sides. Also unprotected or poorly protected iron or steel in exterior walls.
(8) Stocks generally above sixth floor, except in the very best risks.

EXPERT ADVICE.

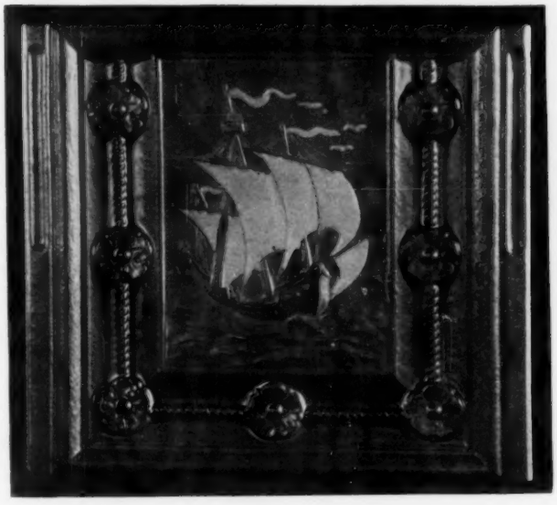
EXPERT advice prepared under the immediate direction of the interested parties has always to be taken with a very large latitude. The manufacturers of reinforced steel concrete construction have made a great deal of capital out of the manner in which the building occupied by the United States Fidelity and Guaranty Company in Baltimore appears to have stood the action of the flames. This structure was of ferro-concrete floor construction throughout, and has been previously described in these pages. The Ferro Concrete Company made an offer to restore all the work in this building for the sum of $650, and this offer was duly heralded as a measure of the extent to which the building has endured the test. We have, however, recently received word from Baltimore that the entire building has been condemned, and is to be taken down and rebuilt, the concrete, upon closer examination, showing such defects that it was not considered wise to retain it at all. This shows the value of some expert advice, even when backed up by a bid.

Again, in some of the official reports on the condition of the Union Trust Building, Baltimore, it has been stated that the damage to the terra-cotta floor arches amounted to forty per cent. As against this we have received word that most careful tests have been made of the entire floor construction, one section being loaded with a weight equivalent to seven hundred pounds per square foot, while a moving load of two hundred and fifty pounds, or more than three times the required live load, was applied to all of the floors throughout, with a result that the floor construction has been passed as being in perfectly usable condition.

Selected Miscellany

METHODS AND COST OF SODDING.*

THE best sod is generally composed of blue grass and red top, with some white clover, and is found in its greatest perfection in upland pastures fully exposed to the sun, which have been grazed over for years. The constant trampling and cropping seem to consolidate the roots and exterminate the weeds, and sod cut from such



FAIENCE TILE USED IN NEW YORK SUBWAY.
Grueby Faience Company, Makers.

a place "rolls like Brussels carpet." Wood sod, or even that cut under isolated trees, is apt to be patchy and rotten.

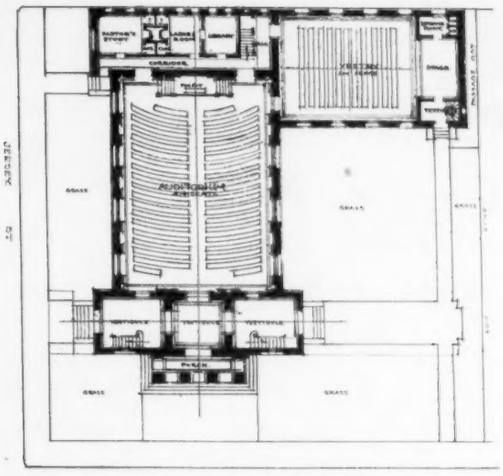
The tools of the sod cutter are few and simple, and any ordinarily intelligent laborer can cut good sod with proper instruction and a few days' practice. The best sod shovel is the one called a "molder's shovel," a flat steel shovel, ten inches wide and twelve inches long.

TYMPANUM FOR CHURCH ENTRANCE.
Edward Stotz, Architect.
Northwestern Terra-Cotta Company, Makers.

These are thick on the edge when bought, and should be drawn out cold on an anvil, sharpened on a grindstone, and kept sharp by the frequent use of a flat, smooth file.

In beginning operations the sod cutter marks off a

* Extract from a paper by Arthur Hay, Engineer of Parks and Boulevards, Springfield, Ill., published in *Engineering News*.

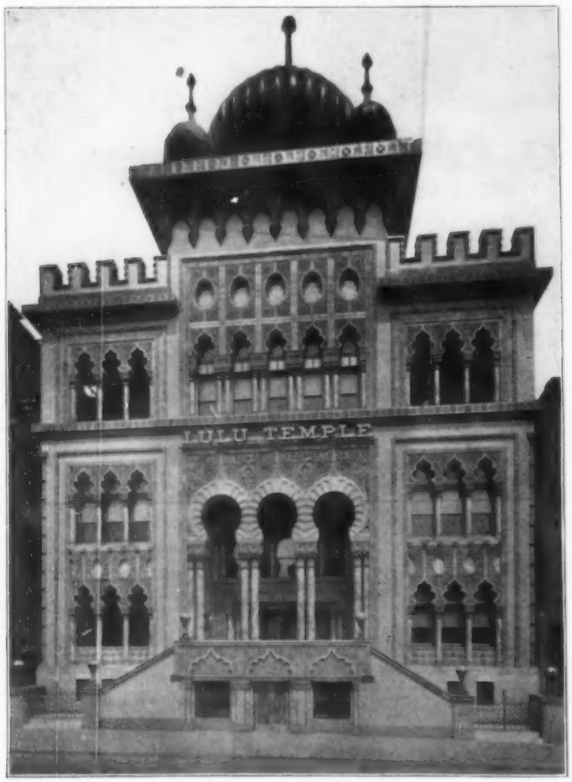


PLAN, CHURCH OF THE DISCIPLES, BOSTON.
Purdon & Little, Architects.

line with the edge of his shovel, six to fifteen feet long, and another one the same length, parallel to it, at a distance of about twelve or fourteen inches. The lines are cut through the sod with the shovel held at an angle, and not perpendicularly, so that the roll is beveled at the edges, and when the sods are laid the edges slightly overlap. This makes a better joint and keeps water from working under the sod and washing the bank. The lines being marked, the sod cutter holds his shovel nearly flat and, thrusting it under the sod, cuts the roll loose from the side, the width of the roll being regulated largely by the length of the shovel. Then he makes a square cut at the end and rolls the sod up, pulling out any weeds he encounters and cutting the roll off when it reaches a convenient size. Such a roll is generally called a yard, and is supposed to be a foot wide and nine feet long, but the usual size is about fourteen inches and seven to eight feet

DETAIL OF SUBWAY STATION, NEW YORK CITY.
Heins & La Farge, Architects.

long, or slightly less than a yard. (One hundred of these rolls is a good wagon load, eighty being about the usual load.) The sod cutter, now having an opening, continues



LULU TEMPLE, PHILADELPHIA, PA.
Milligan & Webber, Architects.
Built largely of Kittanning brick furnished by O. W. Ketcham, Philadelphia Agent.

his cutting, taking care always to bevel his rolls in the same direction and to roll from the same end relative to the bevel, so that the rolls when laid will overlap properly.

DETAIL OF CORNICE, INGALLS BUILDING, CINCINNATI.
Elzner & Anderson, Architects.
Terra-cotta made by Northwestern Terra-Cotta Co.
(Not American Terra-Cotta Co., as previously stated.)

Sod should be cut as thin as possible, say one and one-half to two inches thick. This has several advantages: the sod rolls better and more can be carried in a wagon load, but chiefly such sod laid on a bank quickly sends out fibrous roots from the cleanly severed ends of the old ones and takes such a hold that in a few weeks it is an integral part of the bank and can neither be pulled nor washed loose. Sod cut thick, with the idea of saving all the roots, on the contrary never unites with the bank, and in some heavy rain, perhaps months later, the water works under it and the whole mass slides to ruin. Cutting the sod thin has the further advantage, if appearances are a consideration, that the roots remaining in the ground sprout again; and if the season is favorable and a little grass seed is sown, the unsightly scar disappears in a few weeks under a fresh growth of grass.

DETAIL BY CHARLES BICKEL, ARCHITECT.
New York Architectural Terra-Cotta Company, Makers.

The bank should be graded and smoothed preparatory to the laying of the sod, and if the soil is very hard and sun-baked, as the banks of a cut in clay soil are apt to be, it should be sprinkled and the surface loosened with a garden rake. The sod is unloaded at the top of the bank and the rolls laid beginning at the top and unrolling down hill, taking care to have the bevels overlap as previously explained. If a road or gutter is at the bottom of the bank, as is frequently the case, it is a good plan to run a roll of sod horizontally along it and to make the joint of the ends of the vertical rolls with this, instead of the gutter direct, as this makes a neater job. Sods are cut to fit and joints made with an old butcher knife, and all holes are filled with the scraps cut off, pounded down with the fist. Fine dirt should be sifted into any cracks between the rolls.

If the weather is dry after the sod is laid it must be watered two or three times a week until it starts to grow. A mere sprinkling will not do, but the sod must be soaked until the water penetrates clear through to the soil beneath. It is well also, a week or two after the sod is laid, to go over

DETAIL BY C. B. J. SNYDER, ARCHITECT.
Atlantic Terra-Cotta Co., Makers.

CARLETON BUILDING, ST. LOUIS, MO.
Mauran, Russell & Garden, Architects.
Brick furnished by Hydraulic-Press Brick Company.

the bank just after a heavy shower and beat it all down again with the spatter. If the sod cannot be pulled loose by dragging at it with both hands it is a pretty good indication that the roots have taken hold, and from that time on the sod will take care of itself.

Spring and fall are the best seasons to lay sod, but it can be done nearly every month in the year except when

DETAIL BY F. H. KIMBALL, ARCHITECT.
Excelsior Terra-Cotta Company, Makers.

the ground is frozen hard and the few hot and dry weeks in July or August, when the water used for sprinkling scalds the roots. The writer has seen sod laid successfully in December, when the rolls froze hard every night, and it was necessary to lay them in the sun till noon the

DETAIL BY CARL P. BERGER, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, Makers.

DETAIL BY KERBY, PETIT & GREEN, ARCHITECTS.
Standard Terra-Cotta Works, Makers.

next day before they were thawed sufficiently to unroll; and he recalls an instance when sod cut the preceding fall remained frozen all winter in the roll, and was laid and grew beautifully in the spring. The following details of cost are derived from the data obtained from laying about twenty thousand square yards of sod in Washington Park in the city of Springfield, Ill.:

Cost of cutting	$0.016	per sq. yd.
" " hauling	.009	" " "
" " laying	.026	" " "
" " watering	.006	" " "
" " spatting	.001	" " "
Total cost	$0.058	" " "

Men were paid one dollar and fifty cents per day of eight hours, and the sod cutters had a theory very difficult to break up, that seventy-five "yards" or rolls cut should

BESSEMER BUILDING, PITTSBURGH, PA.
Grosvenor Atterbury, Architect.
Fireproofed by National Fireproofing Company.

FIGURES IN THE CORNICES OF THE NEW BUILDINGS FOR THE COLLEGE OF THE CITY OF NEW YORK.
George B. Post, Architect. Executed in Terra-Cotta by the Perth Amboy Terra-Cotta Company.

constitute a day's work. As in most public work the men were inclined to take it easy, and a contractor who could work longer hours and drive his men a little could probably better these figures. It may be stated for purposes of comparison that sod contractors in this vicinity pay one cent a square yard for sod on the ground, and that ten cents a square yard is the ordinary price charged for furnishing and laying sod complete.

FAIENCE TILES MADE BY HARTFORD FAIENCE COMPANY.

IN GENERAL.

Myron Hunt, formerly of Chicago, and Elmer Grey, formerly of Milwaukee, are now associated for the practice of architecture at Los Angeles, Cal.

The Bruce Architectural Company, Birmingham, Ala., has been selected as architect for the new courthouses at Winona, Miss., and Wynne, Ark.

At the annual meeting of the Cleveland Architectural Club on June 9 the following officers were elected:

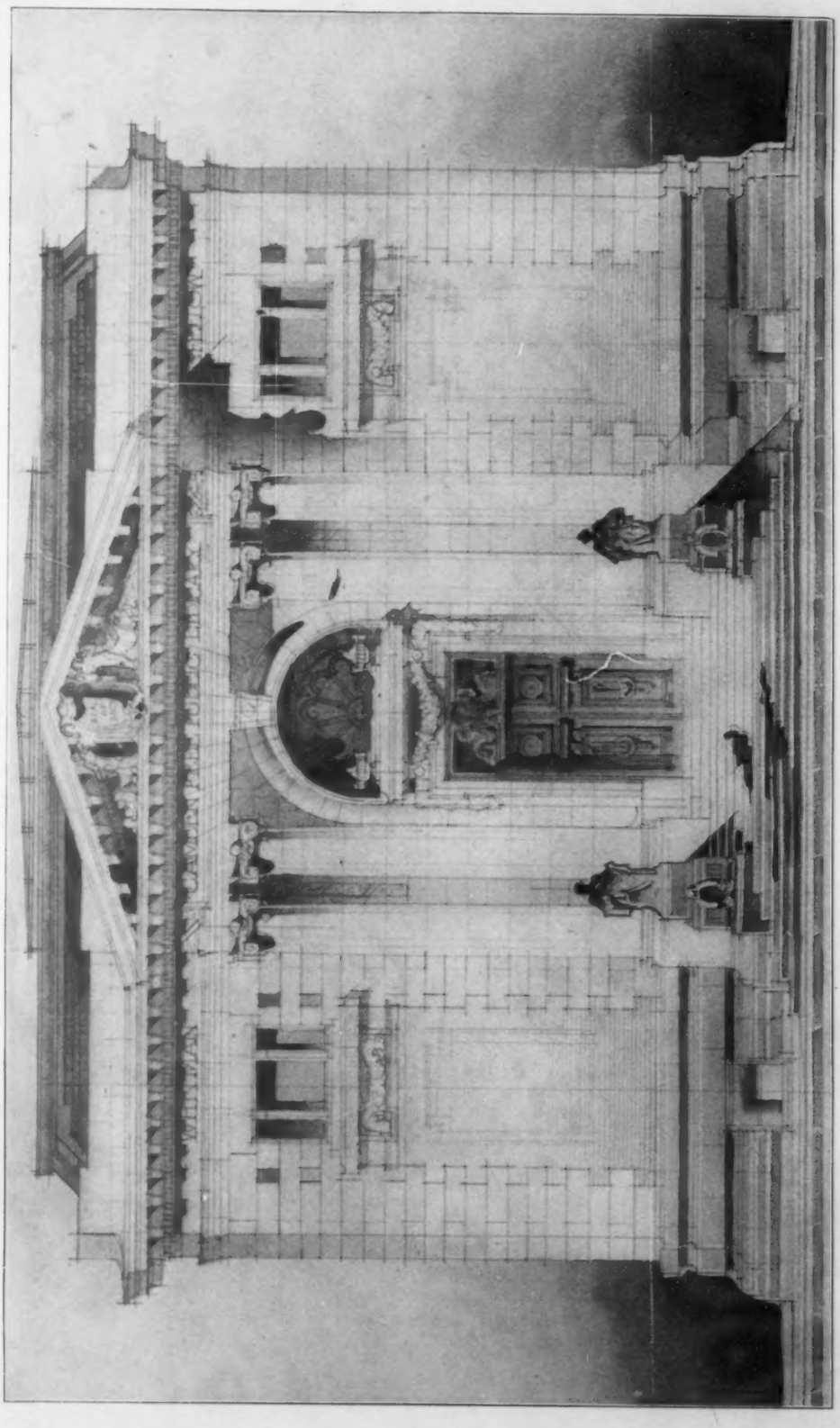
DETAIL EXECUTED BY NEW JERSEY TERRA-COTTA COMPANY.

President, Charles S. Schneider; vice-president, Raymond Parsson; secretary, Alex. C. Wolf; treasurer, M. James Bowman; librarian, R. M. Hulett; chairman of Current Work Committee, S. C. Gladwin; chairman of Entertainment Committee, Herman Kregelius. These will constitute the new Executive Board.

LOWER PORTION OF ORIENT BUILDING, NEW YORK CITY.
Front brick made by Kreischer Brick Manufacturing Company.

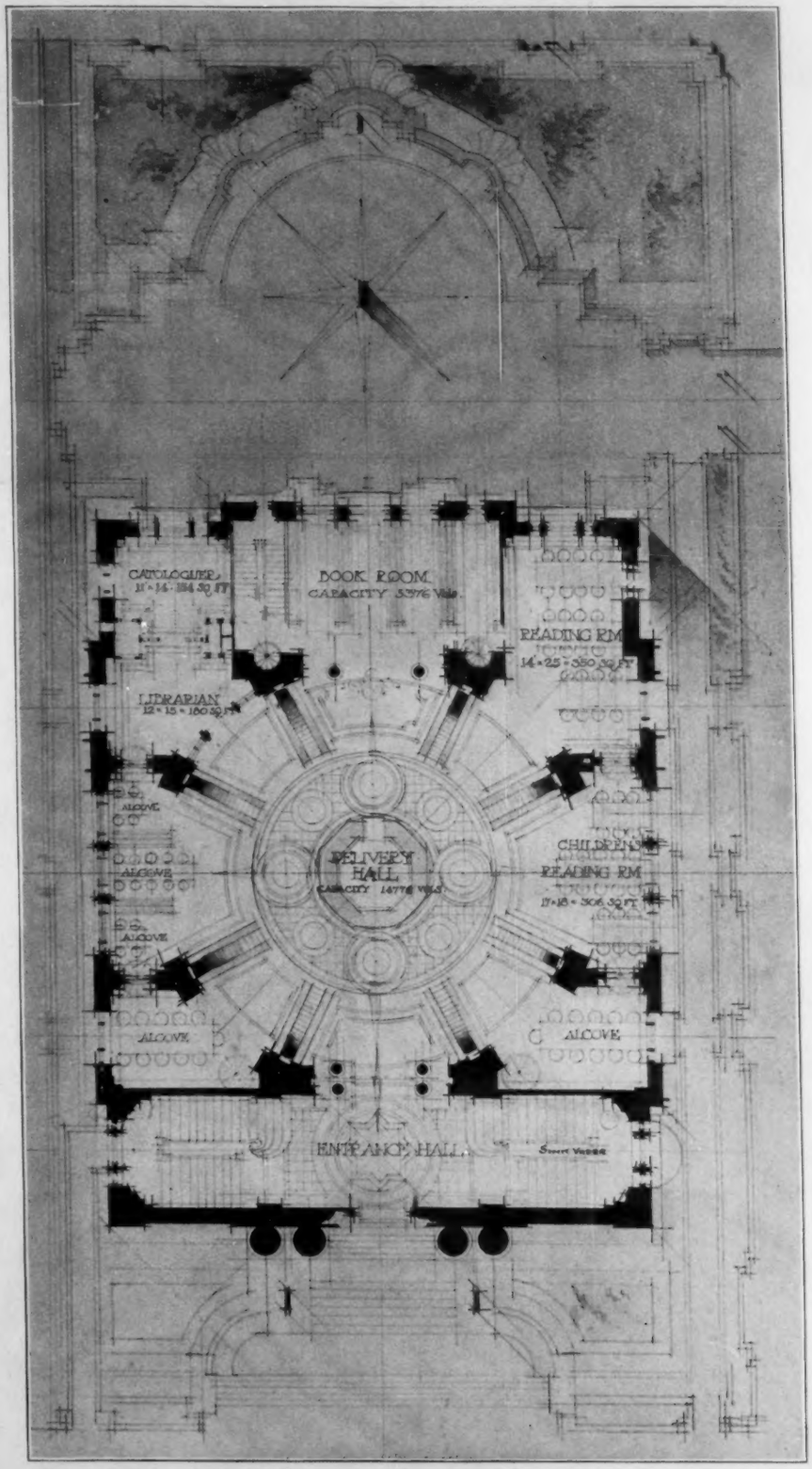
THE THREE-COLOR HALF-TONE PLATE.

THE colored plate which is presented with this month's issue of THE BRICKBUILDER is from a colored drawing by Mr. Gregg of the winning design, submitted by Purdon & Little, in the competition for the Church of the Disciples, Boston. The reproduction was made by the three-color half-tone plate process, and is an almost perfect representation of the original. The color plates were made by the Boston Colorgraph Company, and the presswork was done by The Bartlett Press.



ACCEPTED COMPETITIVE DESIGN FOR PUBLIC LIBRARY, CAMDEN, N. J.

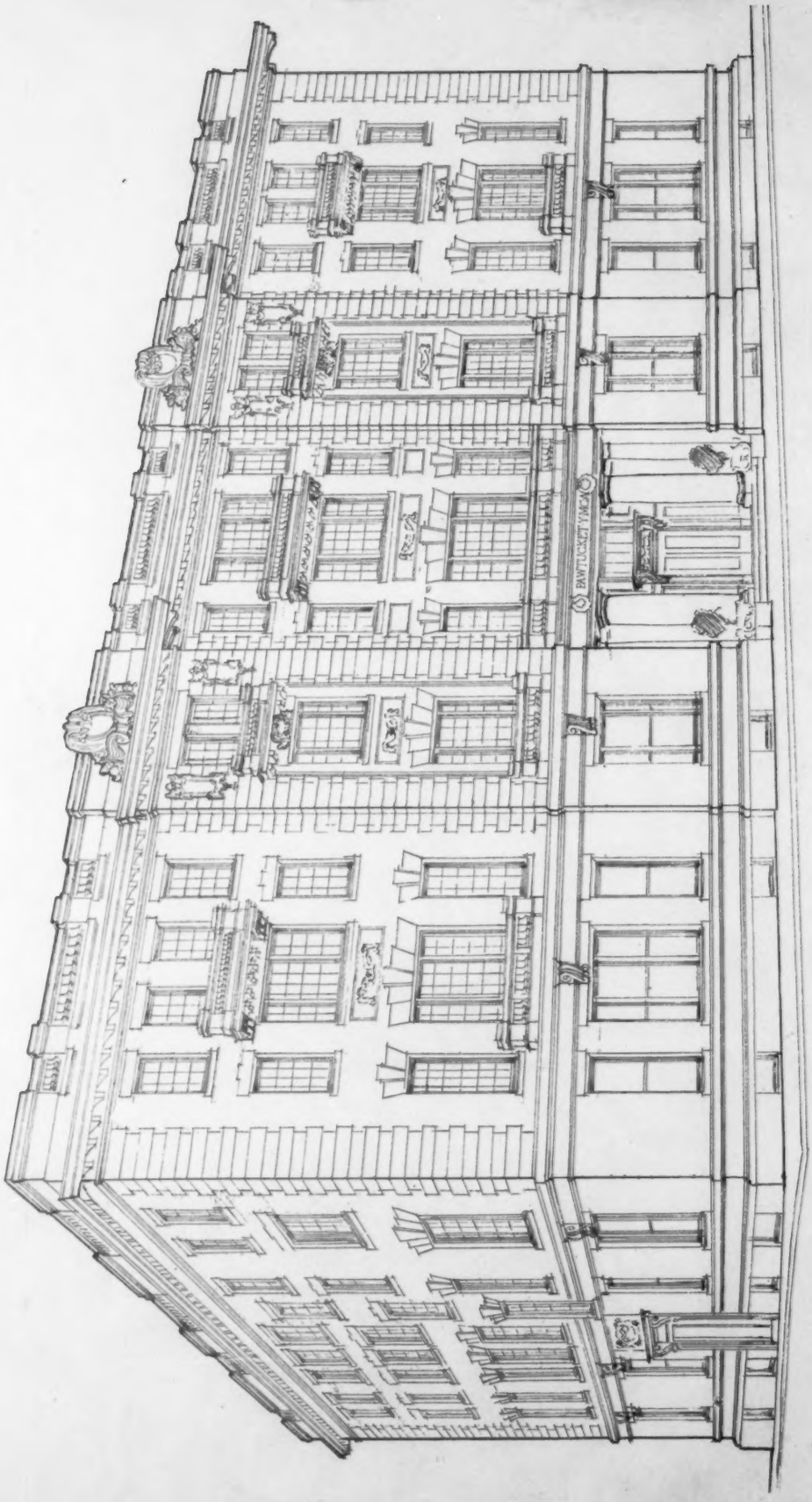
HERBERT D. HALE, ARCHITECT; HENRY G. MORSE, ASSOCIATE ARCHITECT.



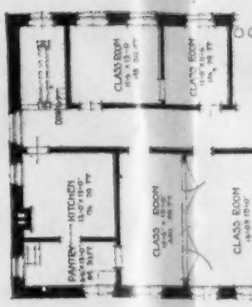
MAIN FLOOR PLAN.

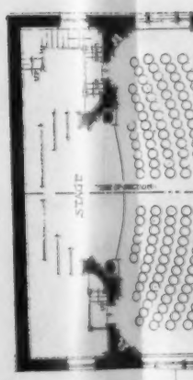
ACCEPTED COMPETITIVE DESIGN FOR PUBLIC LIBRARY, CAMDEN, N. J.

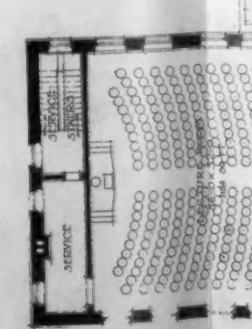
HERBERT D. HALE, ARCHITECT; HENRY G. MORSE, ASSOCIATE ARCHITECT.

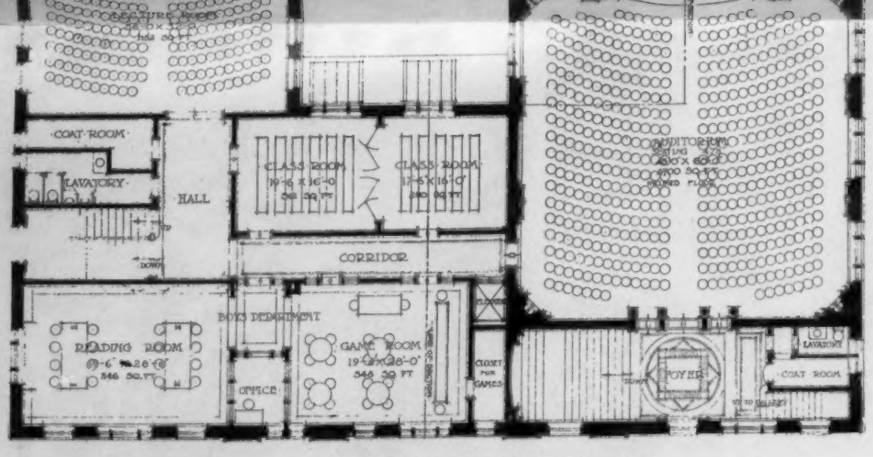

PAWTUCKET Y.M.C.A.


PASSAGE
DRESSING ROOM
LINE OF SECTION

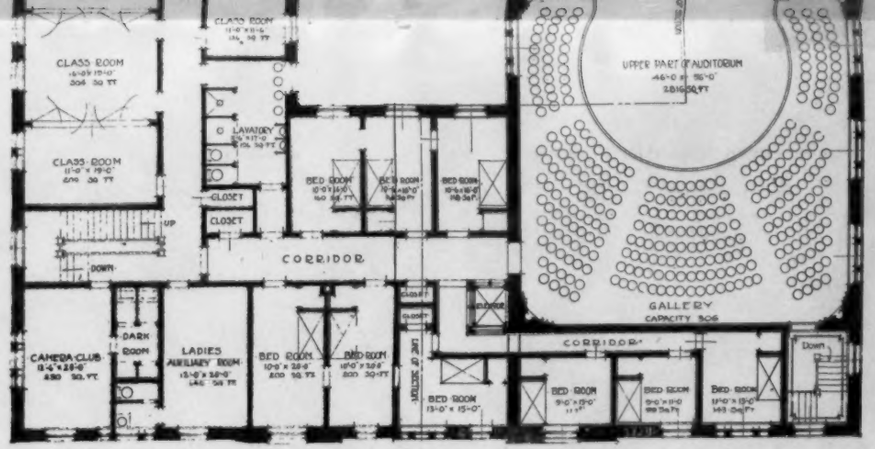

CLASS ROOM
CLASS ROOM
PANTRY
KITCHEN
CLASS ROOM
CLASS ROOM


STAGE

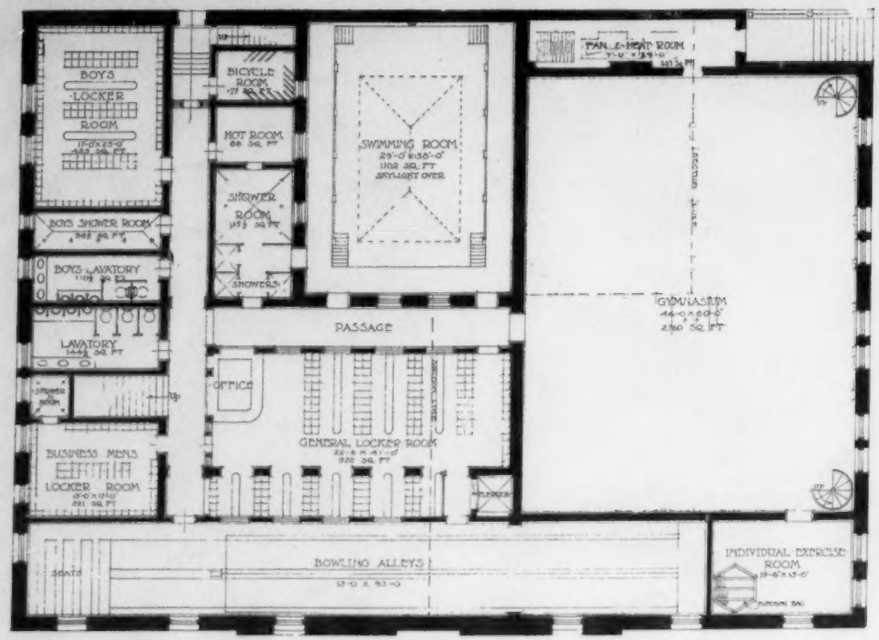

SERVICE
SERVICE
STAIRS



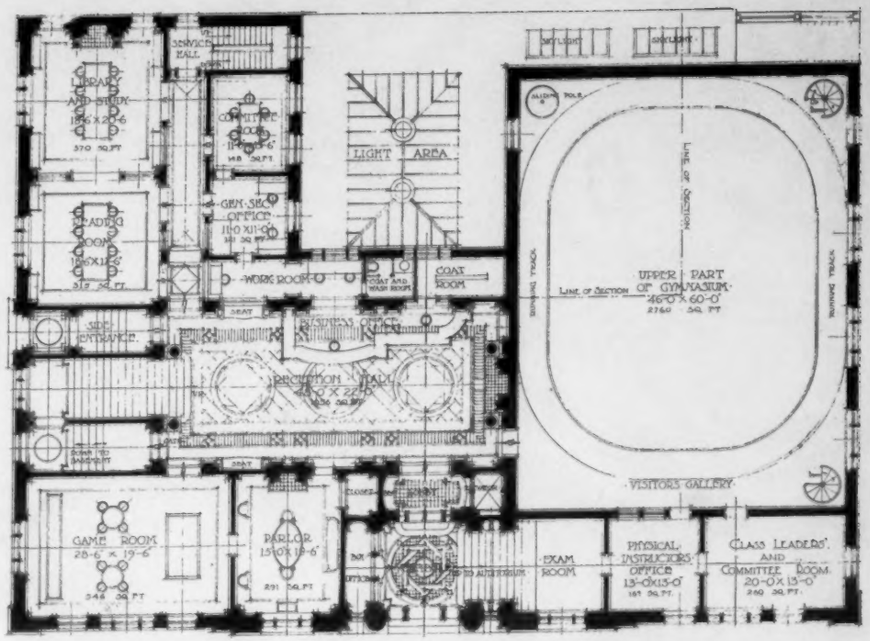
SECOND FLOOR PLAN.



THIRD FLOOR PLAN.



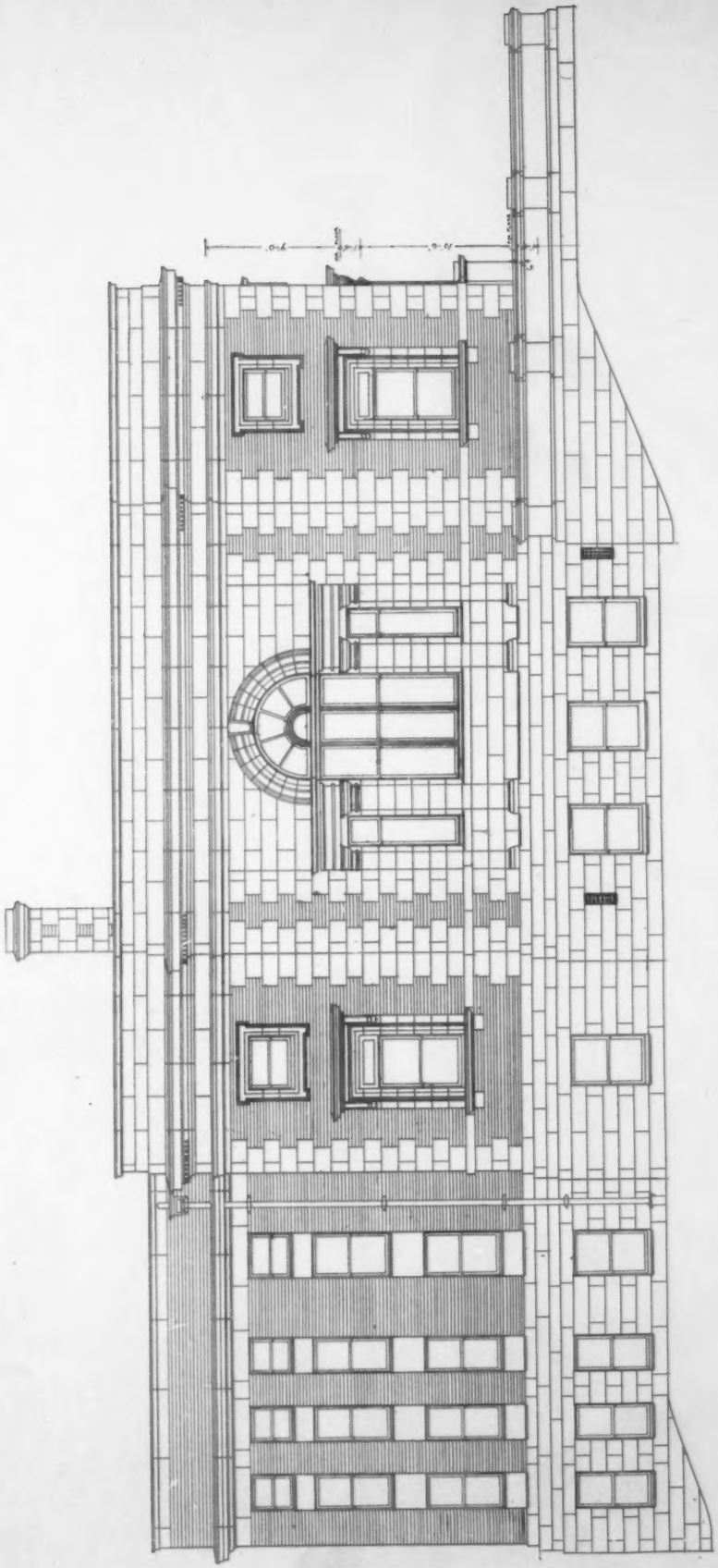
BASEMENT PLAN.



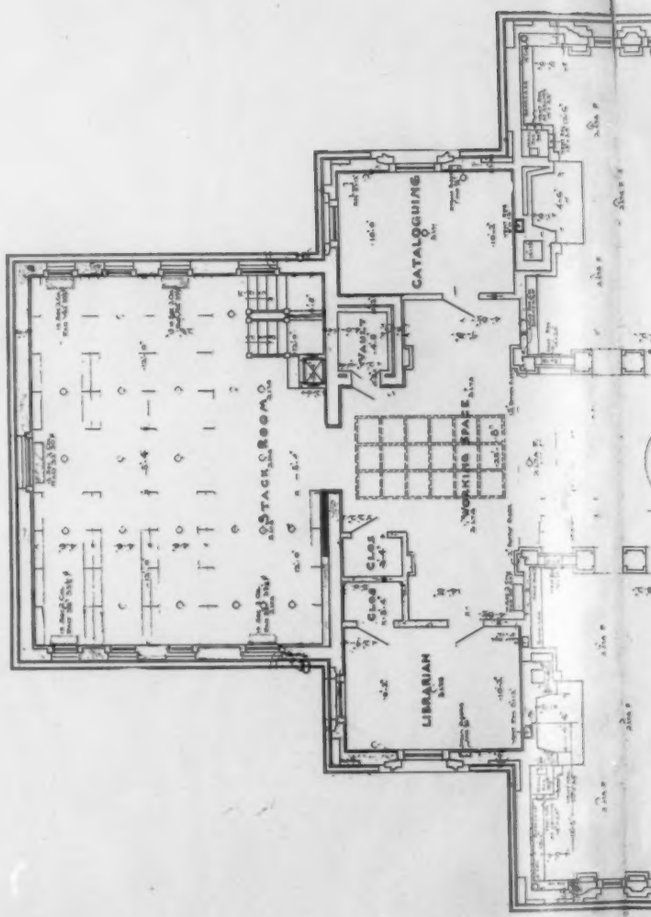
FIRST FLOOR PLAN.

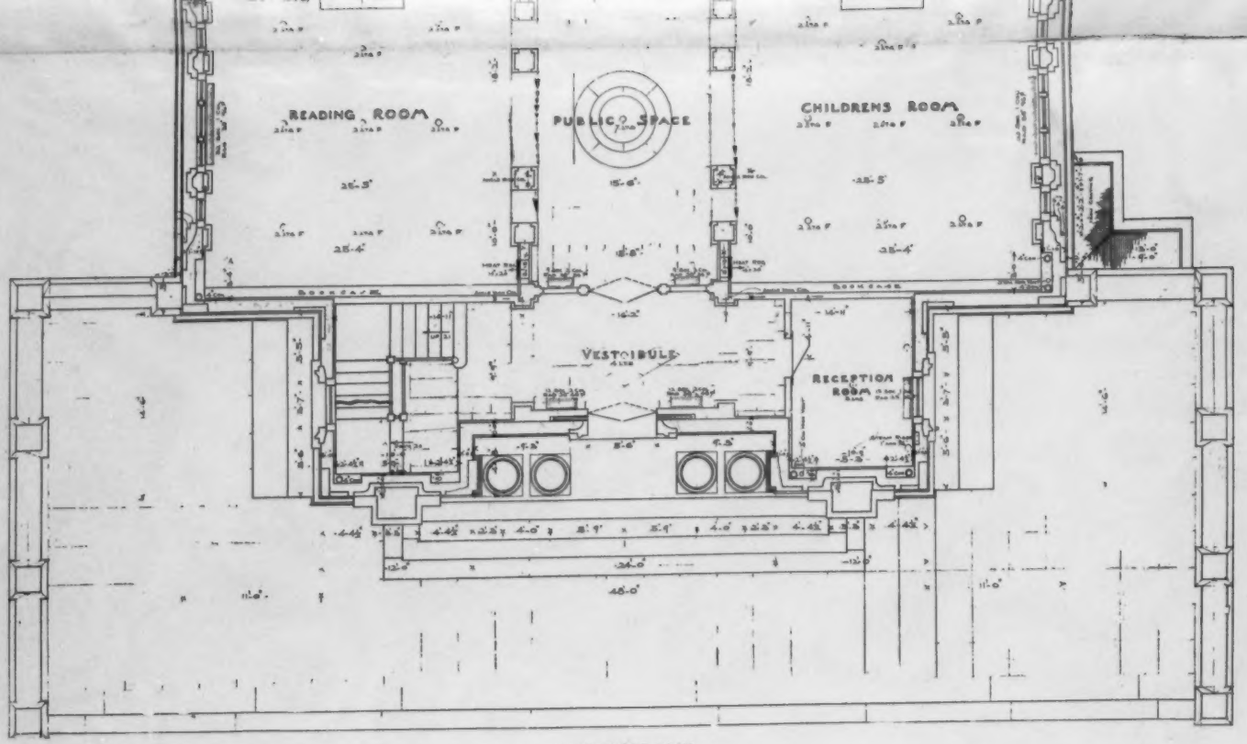
ACCEPTED COMPETITIVE DESIGN FOR Y. M. C. A. BUILDING, PAWTUCKET, R. I.

WALTER ATHERTON AND HERBERT D. HALE, ASSOCIATE ARCHITECTS.



SIDE ELEVATION.



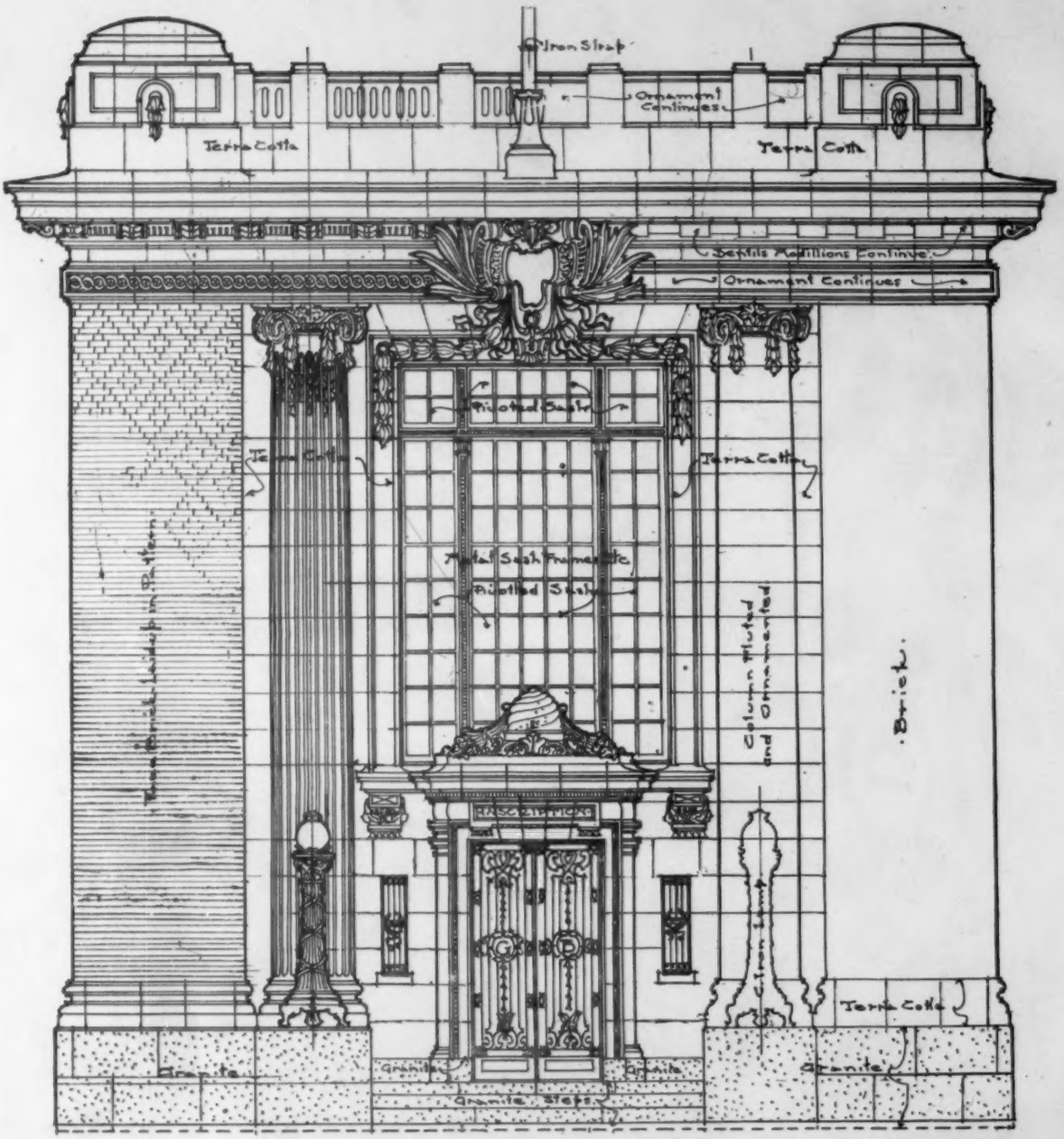


FIRST FLOOR PLAN.

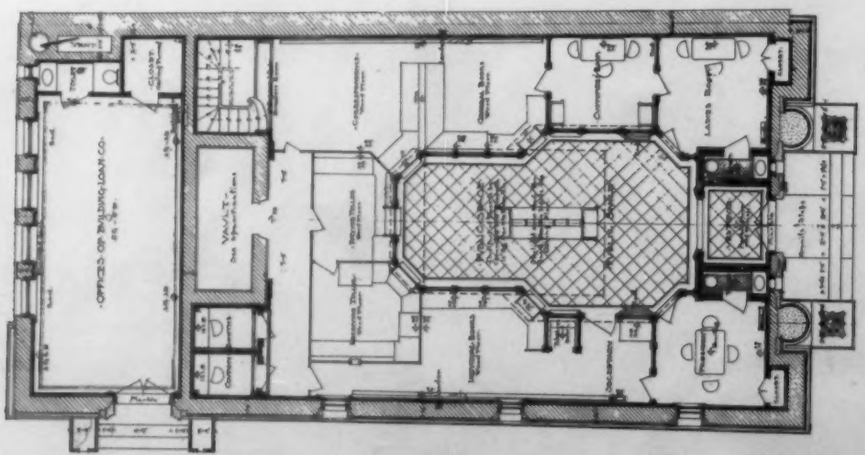
FRONT ELEVATION.

PUBLIC LIBRARY, MILTON, MASS.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



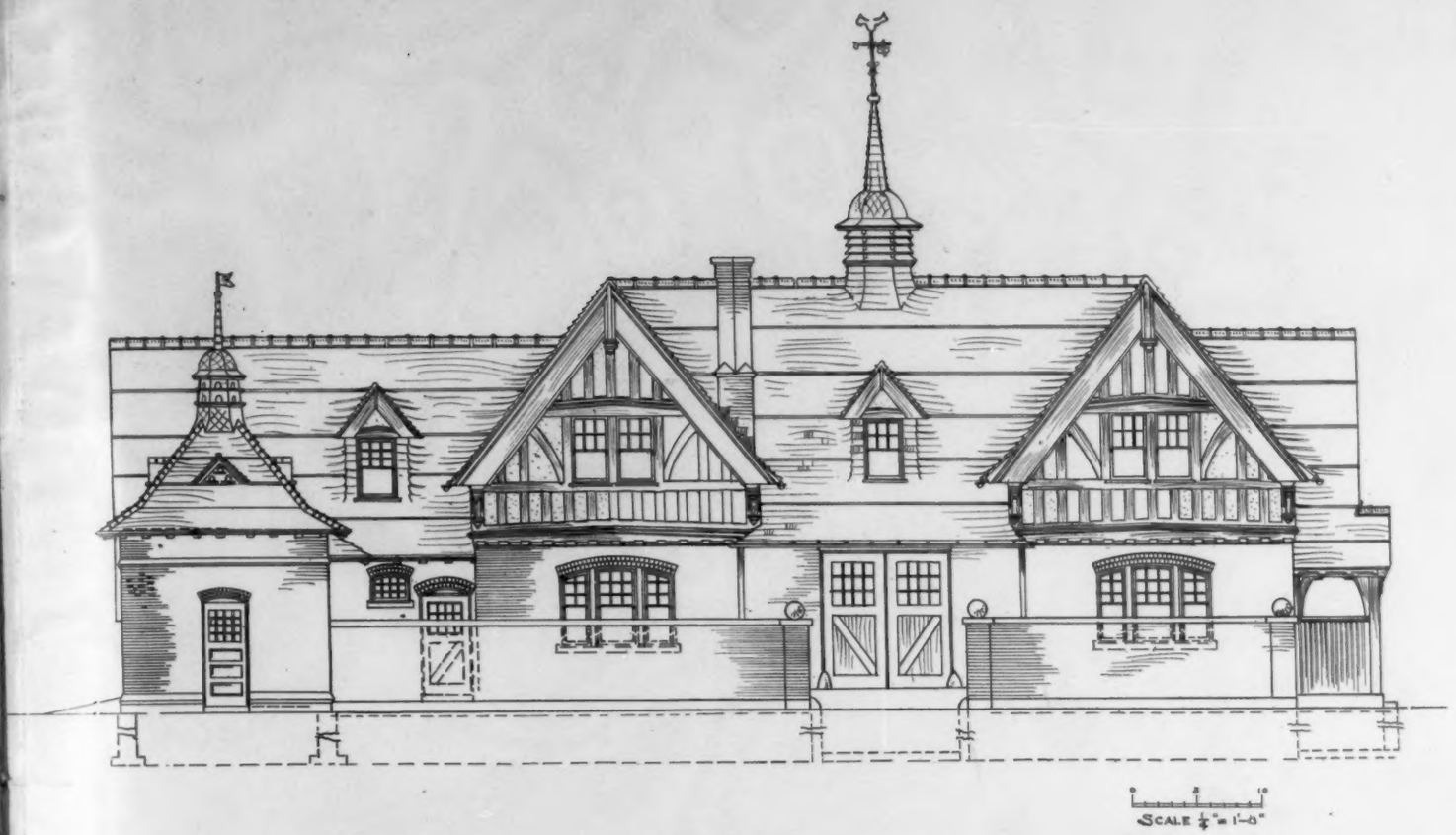
FRONT ELEVATION.



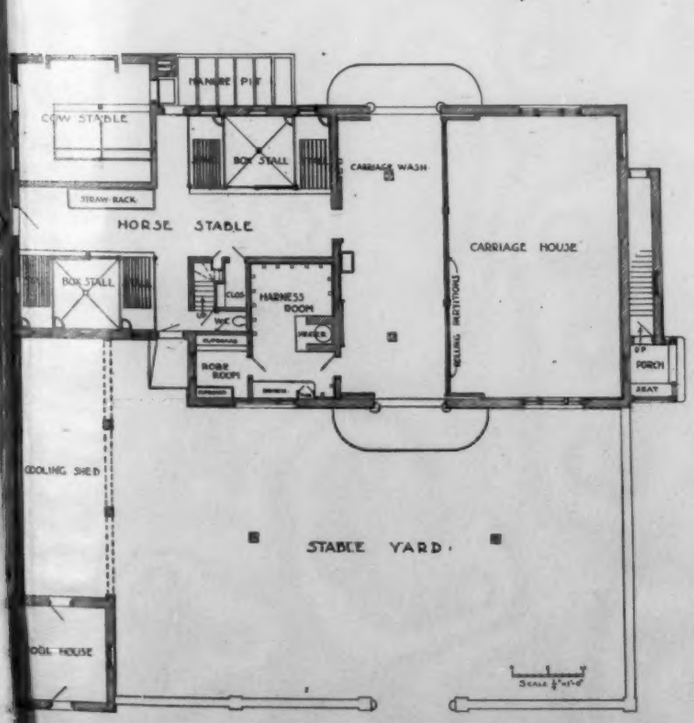
FIRST FLOOR PLAN.

GARFIELD BANK BUILDING, GLENVILLE (CLEVELAND), OHIO.

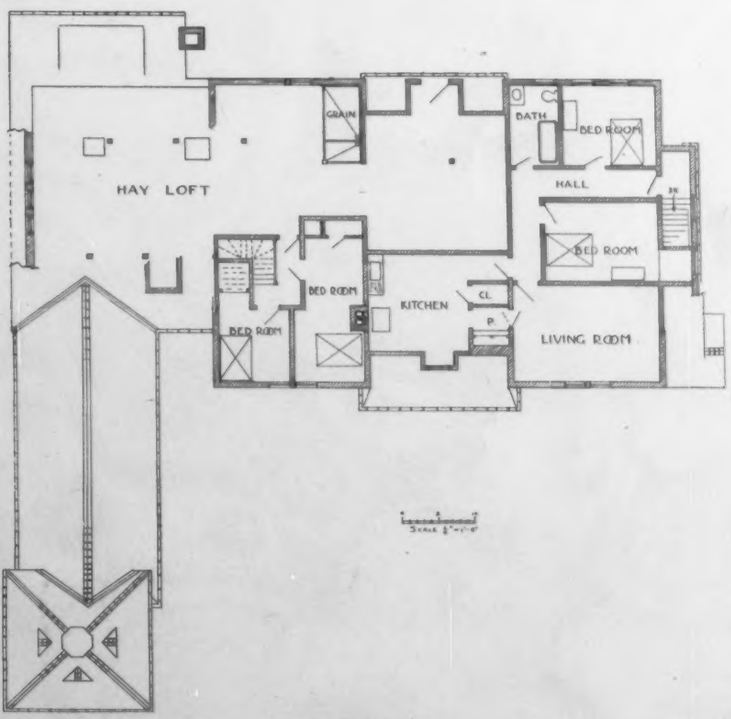
WARD W. WARD, ARCHITECT.



FRONT ELEVATION.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

STABLE, PITTSBURGH, PA.

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